INDEX TO VOLUME 36

R. Bruce Lindsay

Brown University, Providence, Rhode Island 02912

How To Use This Index

This volume index is similar in form to the cumulative indexes of this JOURNAL, covering, respectively, Volumes 1–10, 11–20, 21–30, and 31–35, and it is composed of three main divisions:

1. **Author Index** to Volume 36
2. **Inventor Index to Acoustical Patents,** Volume 36
3. **Analytic Subject Index** to Volume 36

The Subject Index to Volume 36 of *The Journal of the Acoustical Society of America* lists the titles of all items as they have appeared in the JOURNAL. They are grouped under the 16 major section headings as listed in the **Classification of Subjects,** which follows immediately after these paragraphs. Each of these sections is subdivided into a considerable amount of decimally numbered subjects. Each subject is further subdivided into 8 parts entitled, respectively,

1. **Papers**
2. **Letters to the Editor**
3. **Abstracts**
4. **Subtitles**
5. **Patents**
6. **Book Reviews**
7. **News**
8. **Errata**

Papers catalogues alphabetically by title those JOURNAL papers covered by the specific area of the decimal heading under which these are listed. **Abstracts** lists alphabetically the titles of papers presented at meetings. **Subtitles** includes some subtitles from Papers whose titles do not fully describe all the areas covered therein; specially "devised" subtitles when such did not appear in the Paper itself; and some Figure captions. Thus, while the Subtitles portion of the Index is informal, it is hoped that it will increase the probability of finding the desired information quickly. **Patents** lists alphabetically the titles of all Patents as they have appeared in the JOURNAL.

References on most subjects can be located immediately by a logical use of the Classification of Subjects. In the case where the reference sought is of an unusual character, where there is uncertainty as to the specific area under which it might have been classified, it can usually be located quite quickly by the process of eliminating those sections and subjects under which it is quite improbable that the reference might have been listed. Very often, items have been crossreferenced. Obviously, the author or inventor indexes are more convenient than the Subject Index when one knows the name of the author of the paper or the inventor of the patent of interest.

The reader, or his librarian, should go over the list of Errata (Section 0.1) and either make the indicated corrections in the original papers in the JOURNAL or enter a note alongside the title of the original paper itself: "See Erratum, Vol. *XX*, p. *xxx*.

The *References to Contemporary Papers on Acoustics* are identified in each issue of the JOURNAL where they appear by the same decimal numbers listed in the Classification of Subjects, and may be consulted for references in other journals than our own. In Volume 36, these references can be found beginning on pages 226, 614, 976, 1407, 1753, and 2252.

Classification of Subjects

This classification supersedes all previous ones;
there have been major changes and additions.

0 GENERAL

0.1 Errata
0.2 Conferences, Lectures, and Announcements, not of the Acoustical Society of America
0.3 Nonacoustical Theories
0.4 Nonacoustic Devices
0.5 General Acoustics Notes
0.6 Biographical, Historical, and Personal Notes, not of the Acoustical Society of America
0.7 Editorials

1 ACOUSTICAL SOCIETY OF AMERICA

1.1 General, Unclassified
1.2 Constitution and Bylaws
1.3 History
1.4 Honorary Members
1.5 Meetings
1.6 Members and Membership Lists
1.7 Committee Activities
1.8 Prizes, Medals, and Awards
1.9 Regional Chapters

2 ARCHITECTURAL ACOUSTICS

2.1 General, Unclassified
2.2 Auditorium Design. (See also 7.6.)
2.3 Studies of Existing Auditoria and Acoustic Enclosures
2.4 Sound Absorption: Theory and Methods of Measurement of. (See also 2.5.)
2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances
2.6 Noise Reduction by Increased Room Absorption
2.7 Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, 2.10, 11.2, 11.4, and 11.7.) Normal Modes in Rooms. Diffusivity. Frequency Response. Subjective Effects
2.8 Reverberation-Measuring Instruments. (See also 2.7 and 5.15.)
2.9 Sound Transmission through Walls, Theory and Methods of Measurement of. (See also 2.10.)

2.10 Sound-Insulating Structures. Values of Transmission Coefficients. (See also 7.6.)
2.11 Vibration-Insulating Supports in Building Acoustics. (See also 5.21 and 12.3i.)
2.12 Damping of Panels
2.13 Anechoic-Chamber Design. Wedges
2.14 Sound-Reinforcement Systems for Rooms
2.15 Computer Simulation of Acoustics in Rooms

3 BOOKS, BIBLIOGRAPHIES, AND SURVEYS

3.1 Books and Book Reviews
3.2 Bibliographies
3.3 Patents
3.4 Surveys, Historical and Philosophical Literature

4 PHYSIOLOGICAL AND PSYCHOLOGICAL ACOUSTICS

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4.2 Anatomy and Physiology of the Ear
4.2.1 Middle-Ear Mechanics
4.2.2 Cochlear Mechanics
4.2.3 Models of the Ear
4.2.4 Cochlear Electrophysiology
4.2.5 Auditory Nerve and Central Pathways
4.3 Binaural Hearing. Localization
4.4 Deafness. (See also 5.5.)
4.4.5 Auditory Fatigue, Temporary Threshold Shift
4.5 Instruments Relating to Hearing and for the Testing of Hearing. (See also 5.5.)
4.6 Loudness, Threshold Determinations
4.7 Masking. (See also 5.5.)
4.8 Phase Effects. (See also 4.3.)
4.9 Pitch. Absolute Pitch
4.10 Subjective Tones
4.11 Theories of Hearing
4.12 Timbre
4.13 Ear Acoustical Impedance
4.14 Use of Ear Protectors, Earplugs
4.15 Perception of Signals
4.16 Vibration and Tactile Senses

5 ACOUSTICAL INSTRUMENTS AND APPARATUS. (See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3z, 13.11, 13.11n, and 13.11t.)

5.1 General, Unclassified
5.2 Amplifiers and Attenuators
5.3 Acoustic-Impedance Measurement. (See also 11.5 and 12.3z.)
5.4 Analyzers and Filters, Acoustic and Electric. Oscillographs. Acoustic Delay Lines and Resonators. (See also 5.15 and 12.3f.)
5.5 Audiometers. (See also 4.4 and 4.5.)
5.6 Broadcasting (Radio and Television)
5.7 Ear Protectors and Earplugs
5.8 Loudspeakers, Horns, Measurements. Practical Sound Sources. (See also 5.13, 5.17, and 5.18.)
5.9 Microphones. Microphone-Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)
5.10 Navigational Instruments Using Air Sound. Altitude-Measuring Instruments. Sound Ranging. (For Underwater Ranging, see 13.11n.)
5.11 Oscillators, Electrical and Mechanical
5.12 Phase Meters
5.13 Sound-Reproducing Systems, Including Public-Address Systems, Stereophonic Reproduction
5.14 Rayleigh Disks. Radiometers
5.15 Sound-Level Meters. Level Recorders. Sound-Pressure Measurement. (See also 5.4.)
5.16 Sound Recording and Reproducing. General
5.16d Mechanical Recording and Reproducing
5.16f Photographic Recording and Reproducing
5.16m Magnetic Recording and Reproducing
5.16s Electrostatic Recording and Reproducing
5.17 Telephones, Telephone Earphones. (See also 5.13.) Intercommunication Systems
5.18 Transducing Principles, Structures and Materials, General. (See also 5.8, 5.9, 5.17, 10.3, 12.3p, 13.7, and 13.11t.)
5.18d Electrodynamic Transducers
5.18e Electrostatic Transducers
5.18f Magnetostrictive Transducers
5.18g Electromagnetic Transducers
5.18h Feedback Transducers
5.18p Piezoelectric Transducers, Ferroelectrics
5.19 Tuning Forks, Frequency Standards, Frequency-Measuring and -Recording Instruments. Time Standards. Chronographs
5.20 Tone and Wave Synthesizers
5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 12., 12.3, 12.3i, 12.3p, and 12.3v.)

6 MUSIC AND MUSICAL INSTRUMENTS

6.1 General, Unclassified
6.2 Bells, Xylophones. Other Instruments having Rigid Vibrators
6.3 Brass Wind Instruments (Lip-Vibrated)
6.4 Drums and Other Membranophonic Instruments
6.5 Pipe Organs
6.6 Pianos and Other Keyboard Stringed Instruments
6.7 Violin Family. Stringed Instruments, Except Keyboard Type
6.8 Wood Winds
6.9 Electrical Musical Instruments
6.10 Reed Organs. Accordions, Harmonicas
6.11 Singing
6.12 Intonation. Vibrato. Musical Scales. Musical Composition
6.13 Electronic Music

7 NOISE AND NOISE CONTROL

7.1 General, Unclassified
7.2 Annoyance. Effect of Noise on Human Beings
7.4 Community Noise
7.5 Noise Spectra
7.6 Noise in Buildings. (See also 2.2.)
7.7 Machinery Noise. Mufflers. Noise Silencers
7.8 Noise Generators (Solid, Liquid, and Gaseous). Sirens
7.10 Aerodynamic Noise. Jet Noise

8 STANDARDS

8.1 General, Unclassified

9 SPEECH COMMUNICATION

9.1 General, Unclassified
9.2 Anatomy and Physiology of the Larynx and Vocal Tract
9.3 Acoustic Analysis of Speech
9.4 Speech Synthesis
9.5 Perception of Speech and Speechlike Sounds. (See also 4.15.)
9.6 Measures of Speech Intelligibility, Quality, Information Content
9.7 Phonetics, Linguistics, Statistics of Language
9.8 Systems for Speech Transmission. Analysis–Synthesis Telephony, Speech Coding

9.9 Instruments for Speech Measurement
9.10 Machine Recognition of Speech

10 ULTRASONICS

10.1 General, Unclassified
10.2 Physical Effects of Ultrasonic Waves. Optical Diffraction. Ultrasonic Processing.
10.3 Ultrasonic Instruments. (See also 5.18.)
10.4 Gases, Ultrasonic Velocity, Dispersion, Absorption. (See also 11.3.)
10.5 Liquids, Ultrasonic Velocity, Dispersion, Absorption. (See also 13.2 and 13.3.)
10.6 Solids, Ultrasonic Velocity, Dispersion, Absorption
10.8 Chemical Effects of Ultrasonic Waves
10.9 Biological Effects of Ultrasonic Waves
10.10 Ultrasonic Relaxation Processes in Solids, Liquids, and Gases

11 RADIATION AND SCATTERING

11.1 General, Unclassified
11.1.5 Analogies
11.2 Reflection, Refraction, Diffraction, and Interference of Sound Waves
11.3 Velocity and Attenuation of Sound Waves. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)
11.4 Waves in Bounded Media
11.5 Radiation from Vibrating Objects in Air and Other Gases. Acoustic Impedance. Sources of Sound. (See also 5.3, 12.3z, and 13.7.)
11.6 Wave Propagation in Tubes
11.7 Mathematical Theory of Wave Propagation. Ray Acoustics. (See also 11.1.5.)
11.8 Physical Effects of Sound. (See also 12.11.)
11.9 Sounds in the Atmosphere

12 MECHANICAL VIBRATIONS AND SHOCK. (See also 5., 11., and 16.)

12.1 General, Unclassified
12.3 Instruments and Apparatus Relating to Vibration and Shock. (See also 5.3, 5.4, 5.9, 5.21.)
12.3f Mechanical Filters. (See also 5.4.)
12.3i Vibration Isolators, Attenuators, and Dampers. (See also 2.11 and 5.21.)
12.3p Vibration Pickups and Indicators. Calibration Equipment and Techniques. (See also 5.9, 5.18, and 13.11t.)
12.3v Vibration Generators. Shake Tables. (See also 5.21.)
12.3z Mechanical-Impedance Measurement. (See also 5.3 and 11.5.)
12.5 Shock. (See also 14.2 and 13.10.)
12.7 Theory of Vibrating Systems. (See also 11.7 and 11.1.5.)
12.9 Biological Effects of Vibration and Shock. (See also 10.9, 16.2, and 16.3.)
12.10 Seismology. Geophysical Prospecting. Seismographs
12.11 Effect of Sound on Structures. Fatigue. (See also 11.8.)

13 UNDERWATER SOUND

13.1 General, Unclassified
13.2 Propagation of Sound in Water. Attenuation. Fluctuation
13.3 Velocity of Sound in Water. Refraction. Doppler Effect
13.4 Reflection. Echoes. Structures for Absorbing Sound in Water
13.5 Interference. Diffraction
13.6 Scattering. Reverberation in Water
13.7 Radiation from Objects Vibrating under Water. Acoustical and Mechanical Impedance. (See also 5.3, 11.5, and 12.3z.)
13.8 Sound Generation by Liquid Motion, Bubbles, Turbulence, Splashes. (See also 13.12.)
13.9 Noise in Water, Ship Noise. Flow Noise, Biological Noises
13.10 Underwater Macrosonics. Explosions. Distortion. (See also 14.2 and 12.5.)
13.11 Instruments Relating to Underwater Sound
13.11n Navigational Instruments Using Underwater Sound. Underwater-Listening and Echo-Ranging Devices. Sonar
13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)
13.12 Acoustic Cavitation

14 AEROACOUSTICS. MACROSONICS

14.1 General, Unclassified
14.2 Macrosonic Propagation. Distortion of the Wavefront. Shock Waves. Blast Waves. Supersonic Boom
14.3 Gross Movement of Matter by Sound Waves. Acoustic Streaming
14.4 Radiation Pressure. (See also 5.14.)
14.5 Interaction of Sound with Sound
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14.8 Aerothermoacoustics

15 ACOUSTIC SIGNAL PROCESSING

15.1 General, Unclassified
15.2 Statistical Theory of Signals
15.3 Space–Time Processing Methods. Automatic Recognition
15.4 Displays and Sensory Pattern Recognition. Learning Machines
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16 BIOACOUSTICS

16.1 General, Unclassified
16.2 Acoustic Characteristics of Biological Materials. Tissues. Microstructures from Macromolecular Species to Cellular Level
16.3 Acoustic Measurement Methods in Biological Systems and Media
16.4 Mechanisms of Action of Acoustic Energy on Biological Systems. Physical Processes. Sites of Action
16.5 Use of Acoustic Energy (with or without Other Forms of Energy) in Studies of Structure and Function of Biological Systems
16.6 Sound Generation and Detection by Animals
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16.8 Medical Diagnosis with Acoustics
16.9 Medical Use of Ultrasonics for Tissue Modification (Permanent and Temporary)

Author Index to Volume 36

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A

Aas, H. G. and R. K. Erf. Application of ultrasonic standing waves to the generation of optical-beam scanning. **36**: 1906—1964

Abramowitz, W. Phase distortion of reflected sonar pulses. **36**: 214(L)—1964

Academic Press Inc., publisher. *Proceedings of the International School of Physics Enrico Fermi. Course XXVII: Dispersion and Absorption of Sound by Molecular Processes, D. Sette, Director* reviewed by Malcolm C. Henderson. **36**: 1978—1964

Achenbach, Jan D. Approximate transient solutions for the coupled equations of thermoelasticity. **36**: 10—1964

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Albers, V. M. Review of *Acoustique Sous-Marine* by L. Guieysse and P. Sabathé. **36**: 981—1964

Alers, G. A. and P. A. Fleury. Strain amplitude of Mc/sec ultrasonic waves in solids. **36**: 1297—1964

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—— (see Germano, J. F.). **36**: 2015(A)—1964

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—— Mutual radiation impedance of square and rectangular pistons in a rigid infinite baffle. **36**: 1521—1964

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——, **J. L. Bardin, and W. B. Hempkins.** Underwater sound reflection from layered media. **36**: 1015(A), 2119—1964

——, **J. L. Bardin, and J. W. Whiteley.** Acoustic reflection and transmission properties of several transducer window materials. **36**: 2011(A)—1964

—— **and K. McCormack.** Propagation of short-wavelength acoustic waves through an inhomogeneous medium. **36**: 1998(A)—1964

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—— Sound-power studies of model silencers. **36**: 2013(A)—1964

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——, **J. L. Dolby, and H. L. Resnikoff.** Acoustic phonetic transcription of written English. 36: 1988(A)—1964
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—— Theoretical analysis of propagation of sound waves containing shocks. 36: 1032(A)—1964
—— Thermoviscous attenuation of plane, periodic, finite-amplitude sound waves. 36: 534—1964
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——, **Warren Creel, and Samuel R. Powers, Jr.** Short-tone exploration of hearing impairment. 36: 1007(A)—1964
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Brockhurst, Robert (see Baxter, Lincoln, II). 36: 1015(A), 2124—1964
Bronson, Gary J. (see Caulfield, David D.). 36: 1994(A)—1964
Brotzman, Robert Lee. Recognition of lexical tone in Mandarin Chinese by sampling of fundamental frequency. 36: 1048(A)—1964
Brown, J. R. Reverberation under Arctic ice. 36: 601(L)—1964
Brown, R. F. (see Nishi, R. Y.). 36: 1292—1964
Brugger, K. and R. N. Thurston. Sound velocity in stressed crystals and third-order elastic coefficients. 36: 1041(A)—1964
Brummet, B. D. and Sol S. Jaffe. Permanently destaticized high-fidelity records. 36: 1590(L)—1964
Buck, Beaumont M. and Charles R. Greene. Arctic deep-water propagation measurements. 36: 1526—1964
—— (see Greene, Charles R.). 36: 1218(L)—1964
Bucker, H. P. Normal-mode sound propagation in shallow water. 36: 251—1964
——, **J. A. Whitney, and D. L. Keir.** Use of Stoneley waves to determine the shear velocity in ocean sediments. 36: 1595(L)—1964
Buongiovanni, S. (see Rossi, G.). 36: 1845—1964
Burke, James E. Low-frequency approximations for scattering by penetrable elliptic cylinders. 36: 2059—1964
Burris-Meyer, Harold. Acoustics and people. 36: 1043(A), 1967(L)—1964
Burstein, Aaron W. and John J. Keane. Backscattering of explosive sound from ocean bottoms. 36: 1596(L)—1964
Busnel, R.-G., editor. *Acoustic Behaviour of Animals* reviewed by William J. Fry. 36: 1407—1964
Bussell, Bertram (see Paskusz, Gerhard F.). 36: 981—1964
Butler, Robert A. Experimental observations on a negative dc resting potential in the cochlea. 36: 1016(A)—1964
—— **and Ralph F. Naunton.** Role of stimulus frequency and duration in the phenomenon of localization shifts. 36: 917—1964
—— **and R. F. Naunton.** Role of stimulus frequency in the phenomenon of localization shifts. 36: 1029(A)—1964

C

Caldwell, C. L. Resonance in violins. 36: 1025(A)—1964
Callahan, W. R. Flexural vibrations of elliptical plates when transverse shear and rotary inertia are considered. 36: 823—1964
Camp, Leon W. Properties of cylindrical arrays of circular rings II. 36: 1026(A)—1964
Campanella, S. J., D. C. Coulter, and P. Engler. Speech recognition by formant pattern matching in *N*-dimensional space. 36: 1031(A)—1964
—— (see Coulter, D. C.). 36: 1031(A)—1964
Campbell, Richard A. Feedback and noise-signal detection at three performance levels. 36: 1042(A)—1964
—— Masker level and noise-signal detection. 36: 570—1964
—— **and Arnold M. Small, Jr.** Erratum: Effect of practice and feedback on frequency discrimination [J. Acoust. Soc. Am. 35, 1511–1514 (1963)]. 36: 210(L)—1964
Canahl, Julius A., Jr. (see Small, Arnold M., Jr.). 36: 1028(A)—1964
Cantrell, R. H. and R. W. Hart. Interaction between sound and flow in acoustic cavities: mass, momentum, and energy considerations. 36: 697—1964
Capranica, Robert R. Evoked vocal response of the bullfrog. 36: 2007(A)—1964
Carbonell, Jaime R. (see Dyer, Ira). 36: 1033(A)—1964
Carlin, Benson and Ray A. Brinker. Artifacts in ultrasonography. 36: 2017(A)—1964
Carmeci, Peter and Richard Jorgensen. Sonograph recording techniques. 36: 1959(L)—1964
Carnevale, E. H., L. C. Lynnworth, and G. S. Larson. Ultrasonic determination of elastic moduli to 2000°C, using momentary contact. 36: 1999(A)—1964
——, **L. C. Lynnworth, and G. S. Larson.** Ultrasonic measurement of elastic moduli at elevated temperatures, using momentary contact. 36: 1678—1964
Carome, E. F., P. A. Fleury, and W. J. Wagner. Propagation of acoustic transients in absorbing and relaxing liquids. 36: 2368—1964
——, **P. E. Parks, and S. J. Mraz.** Propagation of acoustic transients in water. 36: 946—1964
Carr, P. B. and D. Trill. Long-term larynx-excitation spectra. 36: 2033—1964
Carterette, Edward C. and Margaret Hubbard Jones. Statistics of spoken American English. 36: 1989(A)—1964
—— (see Friedman, Morton P.). 36: 1043(A), 2334—1964
Cassel, Lawrence E. Spectral flattening and its application as a synthesis technique. 36: 1029(A)—1964
Castle, William E. Effects of selective narrow-band filtering on the perception by normal listeners of Harvard PB-50 word lists. 36: 1047(A)—1964
Caulfield, David D. and Gary J. Bronson. Quantitative measure of the acoustical properties of the ocean subbottom, using continuous seismic-profiling data. 36: 1994(A)—1964
——, **Hartley Hoskins, and Richard T. Nowak.** Improvements in the seismic profiler. 36: 1044(A)—1964
Causey, G. Donald (see Zerlin, Stanley). 36: 1992(A)—1964
Chanaud, R. C. Studies of the vortex-whistle periodic flow. 36: 1018(A)—1964
Chaney, Robert B., Jr. Information and complex-signal perception. 36: 1043(A)—1964
Chapman, J. R. (see Benson, R. W.). 36: 1034(A), 1479—1964
Chapman, R. P. and H. D. Scott. Backscattering strength of young sea ice. 36: 2417(L)—1964
—— **and H. D. Scott.** Surface backscattering strengths measured over an extended range of frequencies and grazing angles. 36: 1735(L)—1964
—— (see Marshall, J. R.). 36: 164—1964
Chen, C. Y. (see Tsakonas, S.). 36: 1569, 1708—1964
Chertock, George. Sound radiation from vibrating surfaces. 36: 1305—1964
Chi, S. H. (see Mentel, T. J.). 36: 357—1964
Chieu, N. T. and F. H. Middleton. Model experiments on flooded and air-backed cylindrical radiators. 36: 2005(A)—1964
Chobotov, V. A. and R. C. Binder. Nonlinear response of a circular membrane to sinusoidal acoustic excitation. 36: 59—1964
Chow, Joseph C. F. Attenuation of acoustic waves in dilute emulsions and suspensions. 36: 2395—1964
Christensen, A. (see Muster, D.). 36: 2010(A)—1964

Christian, Ermine A. Shock-wave energy-spectrum scaling. 36: 2418(L)—1964
—— **and Maurice Blaik.** Energy spectra of small explosions at great depths. 36: 2006(A)—1964
—— (see Blaik, Maurice). 36: 2006(A)—1964
Christoff, Jerry P. (see Veneklasen, Paul S.). 36: 903—1964
Clack, T. D., F. Dey, and J. D. Harris. Temporal integration in the human and the Rhesus monkey. 36: 1007(A)—1964
Clapham, R. G. and P. H. Moose. Optimum detection of random phase modulation with phase-lock loops. 36: 2016(A)—1964
Clapp, Gerald A. Periodic variations of the underwater ambient-noise level of biological origin. 36: 1994(A)—1964
Clark, T. F. and D. Muster. Study of the flexural vibration of mass-loaded rings. 36: 2004(A)—1964
Clarke, Hugh J. (see Kendig, Paul M.). 36: 2005(A)—1964
Clarke, Neville P., Walter M. Wolff, and H. E. von Gierke. Simulation of aerospace flight-acceleration environments for biodynamics research. 36: 1021(A)—1964
Clarkson, B. L. Response of control surface types of structure to jet noise. 36: 1046(A)—1964
Clay, C. S. Effect of a slightly irregular boundary on the coherence of waveguide propagation. 36: 833—1964
—— **and H. Medwin.** High-frequency acoustical reverberation from a rough-sea surface. 36: 1987(A), 2131—1964
—— (see Skolnik, M. I.). 36: 1975(AN)—1964
Claytor, R. N. (see Hemphill, R. B.). 36: 2011(A)—1964
Clinch, J. Michael (see Karplus, Henry B.). 36: 1040(A)—1964
Clopton, Ben M. (see Watson, Charles S.). 36: 2009(A)—1964
Coale, Charles W. Modal characteristics of composite elastic structures. 36: 1051(A)—1964
Cohen, Alexander and Karl C. Baumann. Temporary hearing losses following exposure to pronounced single-frequency components in broad-band noise. 36: 1167—1964
Cohen, M. I. (see Hoppmann, W. H., II). 36: 349—1964
Coker, Cecil H. Studies on a computer-programmed formant vocoder. 36: 1022(A)—1964
Cole, B. F. Marine-sediment attenuation and ocean-bottom reflected sound. 36: 1993(A)—1964
Collier, Robert D. and Agnes C. Summers. Analog and digital analysis methods for determining phase relationships between complex acoustical signals. 36: 2080—1964
Collins, Joseph L. and G. E. Ellis. Electrokinetic acoustic pressure transducer. 36: 1858—1964
——, **William C. Richie, and G. Earle English.** Solion infrasonic microphone. 36: 1283—1964
Colson, J. P. (see Eby, R. K.). 36: 1041(A)—1964
Comstock, Craig. On the autocorrelation of random inhomogeneities. 36: 1534—1964
Connolly, James H. Combined effect of shear viscosity, thermal conduction, and thermal relaxation on acoustic propogation in linear-molecule ideal gases. 36: 2374—1964
Contractor, D. N. Preliminary studies of the sound radiated by orifices in pipelines. 36: 2012(A)—1964
Cook, Bill D. Coupled mode theory applied to ultrasonic-light diffraction. 36: 1034(A)—1964
Cook, Richard K. (see Batchelder, Laurence). 36: 1606(AN)—1964
—— (see Waterhouse, Richard V.). 36: 2000(A)—1964
Cooper, Paul W. Correlation detection in a duovelocity medium, with application to seismic disturbances. 36: 1378—1964
Copel, M. Calibration of close talking microphone. 36: 1019(T)—1964
Copeland, W. L. and J. L. Crigler. Rotor–stator interaction noise studies of a single-stage axial-flow research compressor. 36: 2012(A)—1964
Copley, Lawrence G. Novel formulation of the Helmholtz integral for calculating the acoustic field of slender axisymmetric radiators. 36: 2006(A)—1964
Coppens, A. B., M. B. Seiden, and R. T. Beyer. Parameter of nonlinearity for liquids. 36: 1032(A)—1964
Coquin, G. A. Attenuation of guided waves in isotropic viscoelastic materials. 36: 1074—1964
—— Free vibrations of viscoelastic spheres. 36: 1052(A)—1964
Cordaro, J. T. (see Barnard, G. R.). 36: 1988(A)—1964
Cordell, E. L. and R. J. Beason. Function filtering. 36: 2016(A)—1964
Corso, John F. Erratum: Bone-conduction thresholds for sonic and ultrasonic frequencies [J. Acoust. Soc. Am. 35, 1738–1743 (1963)]. 36: 1391(L)—1964
—— (see Saldanha, E. L.). 36: 2021—1964
Cortesina, G. (see Rossi, G.). 36: 1845—1964
Cottis, M. G. and J. G. Jasonides. Excitation of finite cylindrical shells by boundary-layer pressure fluctuations. 36: 1046(A)—1964
Coulter, D. C. and S. J. Campanella. Formant tracking by majority weighting of period measurements. 36: 1031(A)—1964
—— (see Campanella, S. J.). 36: 1031(A)—1964
—— (see Pickett, J. M.). 36: 1031(A)—1964
Crandall, Stephen H., Ghassan R. Khabbaz, and Jerome E. Manning. Random vibration of an oscillator with nonlinear damping. 36: 1330—1964
Crawford, G. J. B. Transmission of high-frequency acoustic waves through an absorbing plate immersed in fluid. 36: 1990(A)—1964
Creel, Warren (see Boomsliter, Paul C.). 36: 1007(A), 1958(L), 2008(A)—1964
Creelman, C. Douglas. Loudness and detectability scaling of bandpass-filtered short tones. 36: 966(L)—1964
Cremer, Lothar. *Die wissenschaftlichen Grundlagen der Raumakustik—Band II: Statistische Raumakustik* reviewed by G. M. Sessler. 36: 1751—1964
Crigler, J. L. (see Copeland, W. L.). 36: 2012(A)—1964
Cross, D. V., H. L. Lane, and W. C. Sheppard. Visual control of phonemic contrasts: a test of the motor theory of speech perception. 36: 1047(A)—1964
Cummiskey, P. (see Flanagan, J. L.). 36: 1030(A)—1964
Curtis, J. A. and J. J. Figwer. Simulated background noise to improve acoustical privacy in buildings. 36: 1024(A)—1964
Cutt, Roger A. (see Philips, Charles M.). 36: 1955(L)—1964

D

Daggett, N. L. and B. Gold. Compact pitch computer. 36: 1030(A)—1964
Dallos, Peter J. Dynamics of the acoustic reflex: phenomenological aspects. 36: 2175—1964
—— **and Wayne O. Olsen.** Integration of energy at threshold with gradual rise-fall tone pips. 36: 743—1964
—— (see Tillman, Tom W.). 36: 582—1964
Daniloff, R. G., T. J. Glattke, R. W. Keith, and Arnold M. Small, Jr. Procedural variables influencing estimations of differential thresholds for frequency. 36: 1733(L)—1964
D'Antinio, R. A. and R. F. Hill. Model study of signals reflected from a wind-driven surface. 36: 1044(A)—1964
Dardy, Henry D. (see Hunter, Joseph L.). 36: 1914—1964

Darnall, W. H. and J. N. Birch. Intelligibility of frequency-modulated speech. **36**: 1391(L)—1964
David, E. E., Jr. (see Flanagan, J. L.). **36**: 2184—1964
—— (see Rabiner, Lawrence R.). **36**: 2008(A)—1964
Davies, R. O., editor. *Proceedings of the Eighth International Conference on Low Temperature Physics* reviewed by Isadore Rudnick. **36**: 1978—1964
Davis, Hallowell. Some acoustic relations of the slow cortical-evoked response. **36**: 1977(A)—1964
—— **and Fred Kranz.** International audiometric zero. **36**: 1450—1964
Dean, L. Wallace. Review of *A Course of Lectures on the Theory of Sound* by S. N. Rschevkin. **36**: 1753—1964
Deatherage, Bruce H. (see Robinson, Donald E.). **36**: 1029(A)—1964
DeChico, R. A. and R. C. Lewis. Pertinent acoustic characteristics of cylindrical wooden tanks. **36**: 2017(A)—1964
Delsasso, L. P. Absorption of upholstered chairs as related to their spacing. **36**: 1010(A)—1964
—— (see Leonard, R. W.). **36**: 1010(A), 2328—1964
DeMetz, Fred C., Donald W. Jorgensen, and Charles Devin, Jr. Measurements of pressures on a rigid pipe wall due to turbulent air flow. **36**: 1044(A)—1964
Dennis, Jack B. Control language for experimental speech synthesis. **36**: 1039(A)—1964
——, **Edward C. Whitman, and Raymond S. Tomlinson.** On the construction of a dynamic vocal-tract model. **36**: 1038(A)—1964
DeSilva, C. N. and G. E. Tersteeg. Axisymmetric vibrations of thin elastic shells. **36**: 666—1964
Devin, Charles, Jr. (see DeMetz, Fred C.). **36**: 1044(A)—1964
Devine, John A. and Herbert L. West. Unidirectional resonance characteristics of split cylinders. **36**: 2005(A)—1964
Dey, F. (see Clack, T. D.). **36**: 1007(A)—1964
Diamond, Marvin and R. P. Lee. Sound propagation from high-altitude explosions. **36**: 1991(A)—1964
Dietz, F. T. (see Penhallow, W. S.). **36**: 2149—1964
DiMattia, A. (see Bauer, B. B.). **36**: 1041(A)—1964
di Novi, Roberta A. (see Berger, Harold). **36**: 2053—1964
Dirks, Donald D. and Carolyn Malmquist. Threshold shifts for continuous or pulsed tones produced by contralateral steady or pulsed noise. **36**: 1992(A)—1964
DiTaranto, R. A. and W. Blasingame. Effect of end constraints on the damping of laminated beams. **36**: 2004(A)—1964
—— (see Blasingame, W.). **36**: 1052(A)—1964
Dolby, J. L. (see Bhimani, B. V.). **36**: 1988(A)—1964
Donato, R. J. Amplitude of P-head waves. **36**: 19—1964
—— Head waves from liquid layers. **36**: 26—1964
Donley, Ray (see Ostergaard, Paul B.). **36**: 409—1964
Doty, E. W., Dean. Welcome (Session V. Musical Acoustics II. Acoustical Society of America meeting). **36**: 2017(A)—1964
Dragonette, Louis R. (see Neubauer, Werner G.). **36**: 1685—1964
Drake, William R. Air Force Eastern Test Range underwater-sound systems. **36**: 2016(A)—1964
Dranetz, Abraham I. Techniques for automatic recording of impedance and admittance of transducers under high power. **36**: 1013(A)—1964
Dudley, Homer. Thirty years of voçoder research. **36**: 1021(A)—1964
Dumanian, J. A. Self-synchronized vocoder digital-transmission systems. **36**: 1022(A)—1964
—— (see Tierney, Joseph). **36**: 1901—1964
Durlach, N. I. Note on binaural masking-level differences as a function of the interaural correlation of the masking noise. **36**: 1613—1964
—— Note on binaural masking-level differences at high frequencies. **36**: 576—1964
Durling, B. J. (see Walton, W. C., Jr.). **36**: 1995(A)—1964
Dyer, Ira, Charles I. Malme, and Jaime R. Carbonell. Airblasts generated by underwater explosions. **36**: 1033(A)—1964

E

Eaglesfield, C. C. Backscatter of sound from the sea bottom. **36**: 1217(L)—1964
Eastham, Melville, 1885–1964. Arnold P. G. Peterson. **36**: 1222(AN)—1964
Eastmond, E. John (see Bassett, Irvin G.). **36**: 911—1964
Eby, R. K. Determination of the propagation constants for ultrasonic waves in melting and molten polyethylene. **36**: 1485—1964
—— **and J. P. Colson.** Relaxation in polyethylene: orientation of lamellar crystals. **36**: 1041(A)—1964
Egan, James P. Masking-level differences as a function of interaural disparities in intensity of signal and of noise. **36**: 1992(A)—1964
—— **and William Benson.** Masking-level differences for lateralization of a weak signal. **36**: 1992(A)—1964
Eichler, Ewald. Calculation of coupling effects in Pritchard's array. **36**: 1393(L)—1964
—— Plate-edge admittances. **36**: 344—1964
—— (see Lyon, Richard H.). **36**: 1344—1964
Einspruch, Norman G. Generation of circularly polarized transverse elastic waves. **36**: 971(L)—1964
Eisner, E. Resonant vibration of a cone. **36**: 309—1964
—— Torsionally resonant amplitude transformers for high magnification. **36**: 1—1964
Eldred, Kenneth M. Noise reduction of jets by multiple nozzles and turbo fans. **36**: 1035(A)—1964
Elert, Claes-Christian. *Phonologic Studies of Quantity in Swedish. Based on material from Stockholm speakers. (Monografier utgivna av Stockholms kommunal-förtvaltning 27.)* reviewed by Morris Halle. **36**: 2429—1964
Elfner, Lloyd. Systematic shifts in the judgment of octaves of high frequencies. **36**: 270—1964
Elliott, Donald N. Effect of sensorineural damage upon the cat's intensity-difference threshold. **36**: 1007(A)—1964
——, **J. Sheposh, and L. Frazier.** Effect of monaural fatigue upon pitch matching and discrimination. **36**: 752—1964
—— (see Fujita, Shiro). **36**: 1007(A)—1964
—— (see Riach, W. D.). **36**: 1195—1964
Elliott, Lois L. Backward masking: different durations of the masking stimulus. **36**: 393(L)—1964
—— Note on predicting speech-discrimination scores. **36**: 1961(L)—1964
—— Temporal variables in masking of short tones by noise bursts. **36**: 1028(A)—1964
Ellis, G. E. (see Collins, Joseph L.). **36**: 1858—1964
Elpern, Barry S. and Ralph F. Naunton. Lateralizing effects of interaural phase differences. **36**: 1392(L)—1964
—— (see Naunton, R. F.). **36**: 1049(A)—1964
Embleton, T. F. W. Multiple scattering of waves by a forest. **36**: 1009(A)—1964
Engebretson, A. Maynard (see Miller, James D.). **36**: 1591(L); erratum 2234—1964
Engel, Frederik L. (see Ritsma, Roelof J.). **36**: 1637—1964
Engler, P. (see Campanella, S. J.). **36**: 1031(A)—1964
English, G. Earle (see Collins, Joseph L.). **36**: 1283—1964
—— (see Larkam, C. W.). **36**: 2010(A)—1964

Engstrom, J. R. Determination of bandpass-filter corrections. 36: 2015(A)—1964
Enns, R. H. Ultrasonic absorption and dispersion in monatomic gases. 36: 2382—1964
Erf, R. K. (see Aas, H. G.). 36: 1906—1964
Eubanks, R. A. and Douglas Muster. Balancing flexible rotors. 36: 1020(A)—1964

F

Fabian, R. W., L. E. Long, and D. J. Repici. Technique for curing polyurethane coatings on piezoelectric transducers. 36: 1027(A)—1964
Fairbanks, Grant (1911–1964). 36: 1969—1964
Fant, Gunnar and Bertil Sonesson. Speech at high atmospheric pressures. 36: 2002(A)—1964
Faure, Pierre. Theoretical model of reverberation noise. 36: 259—1964
Ferris, Horace G. Farfield radiation pattern of a noise source from nearfield measurements. 36: 1597(L)—1964
Ferris, Raymond H. (see Hurdle, Burton G.). 36: 1936—1964
Ffowcs-Williams, John E. Sound radiation from turbulent flow near flexible surfaces. 36: 2012(A)—1964
Fiala, Walter T. (see Van Houten, John J.). 36: 1036(A)—1964
Figwer, J. J. (see Curtis, J. A.). 36: 1024(A)—1964
Finch, R. D. Influence of radiation on the cavitation threshold of degassed water. 36: 2287—1964
——, **R. Kagiwada, M. Barmatz, and I. Rudnick.** Cavitation thresholds of superfluid helium. 36: 1009(A)—1964
Fitzgerald, Edwin R. Simple method for observing audio-frequency resonances and sound beams in crystal. 36: 2086—1964
Fitzroy, Dariel. Some further remarks on the Fitzroy multiaxial reverberation formula. 36: 1010(A)—1964
Flad, F. R., J. A. Kuzneski, and W. B. Packard. Experimental determination of mutal radiation impedance between coplanar circular pistons. 36: 2005(A)—1964
Flanagan, J. L., E. E. David, Jr., and B. J. Watson. Binaural lateralization of cophasic and antiphasic clicks. 36: 2184—1964
—— **and Newman Guttman.** Estimating noise hazard with the sound-level meter. 36: 1654—1964
—— **and D. I. S. Meinhart.** Source-system interaction in the vocal tract. 36: 2001(A)—1964
——, **D. I. S. Meinhart, and P. Cummiskey.** Digital equalizer and deequalizer for speech. 36: 1030(A)—1964
—— (see Guttman, Newman). 36: 757—1964
—— (see Rabiner, Lawrence R.). 36: 2008(A)—1964
Fleming, Lawrence. Feedback vibrometer. 36: 1645—1964
Fletcher, Harvey. Normal vibration frequencies of a stiff piano string. 36: 203, errata 1214(L)—1964
Fletcher, J. L. (see Loeb, M.). 36: 1050(A), 2007(A)—1964
Fleury, P. A. (see Alers, G. A.). 36: 1297—1964
—— (see Carome, E. F.). 36: 2368—1964
Flowers, Kenneth D. (see Hurdle, Burton G.). 36: 1936, 1993(A)—1964
Flügge, S., editor. *Encyclopedia of Physics, Volume XI, Part II, Acoustics II* reviewed by Isadore Rudnick. 36: 800—1964
Flügge, W. and J. R. Hutchinson. Axial vibrations of a semi-infinite viscoelastic rod with external elastic constraint. 36: 1052(A)—1964
Focht, Louis R. Speech energy rate of change as a function of its spectral location. 36: 1030(A)—1964
Fothergill, N. O. (see Macpherson, J. D.). 36: 1014(A)—1964
Fowler, Edmund Prince, Jr., 1905–1964. 36: 975(AN)—1964
Fox, C. C. Measurement dynamic strain vibrating piezoceramic bending bars. 36: 1013(A)—1964
—— (see Akervold, O. L.). 36: 1013(A)—1964
Fox, George R. Ambient-noise directivity measurements. 36: 1537—1964
—— New technique for the investigation of ocean-bottom acoustic structure. 36: 1994(A)—1964
Frandsen, W. H. and B. Langenecker. Application of photoelasticity to research on effects of ultrasonic stress waves on metals. 36: 1034(A)—1964
Frazier, L. (see Elliott, D. N.). 36: 752—1964
—— (see Riach, W. D.). 36: 1195—1964
Frederick, J. P. (see Moskal, B. J.). 36: 2011(A)—1964
Freedman, A. Recent approaches to echo-structure theory. 36: 2000(A)—1964
Frey, Austin R. Review of *Dictionnaire générale d'acoustique et d'électroacoustique* by Henry Piraux. 36: 1752—1964
Friedlander, Melvin M., T. J. B. Smith, and Alan Powell. Experiments on the Rijke-tube phenomenon. 36: 1009(A), 1737(L)—1964
Friedman, Morton P. and Edward C. Carterette. Detection of Markovian sequences of signals. 36: 2334—1964
Frishkopf, Lawrence S. Excitation and inhibition of primary auditory neurons in the little brown bat. 36: 1016(A)—1964
—— (see Furman, Gershon G.). 36: 2194—1964
Fromkin, Victoria A. Parameters of lip position. 36: 1037(A)—1964
Fry, Francis J. (see Fry, William J.). 36: 1795—1964
Fry, William J. Annual Meeting of the American Institute of Ultrasonics in Medicine. 36: 2419(AN)—1964
—— Review of *Acoustic Behaviour of Animals* edited by R.-G. Busnel. 36: 1407—1964
—— Review of *Marine Bio-Acoustics* edited by William N. Tavolga. 36: 2251—1964
——, **Francis J. Fry, Rita Malek, and Joseph W. Pankau.** Quantitative neuroanatomic studies implemented by ultrasonic lesions—mamillary nuclei and associated complex of cat brain. 36: 1795—1964
Fuchs, G. L. Objections and suggestions on impact and airborne-insulation measurements. 36: 1024(A)—1964
Fujita, Shiro and Donald N. Elliott. Thresholds of audition for three species of monkeys. 36: 1007(A)—1964
Fuller, F. B. (see Goodier, J. N.). 36: 1491—1964
Furman, Gershon G. and Lawrence S. Frishkopf. Model of neural inhibition in the mammalian cochlea. 36: 2194—1964
Furrer, W. Acoustics in Switzerland. 36: 2250(AN)—1964

G

Gales, R. S. Review of *Signal Detection and Recognition by Human Observers* edited and arranged by John A. Swets. 36: 2428—1964
—— (see Young, Robert W.). 36: 1212(L)—1964
Ganton, J. H. (see Milne, A. R.). 36: 855, 1994(A)—1964
Gardner, Mark B. Effect of noise on listening levels in conference telephony. 36: 2354—1964
—— Study of noise and other factors in conference telephony. 36: 1036(A)—1964
Gatenby, Ian Alexander, 1926–1963. 36: 798(AN)—1964
Gentle, Kenneth W. and Uno Ingard. Langmuir probe as an acoustic detector in an ionized gas. 36: 1999(A)—1964
Gerber, Henry. Acoustic properties of fluid-filled chambers at infrasonic frequencies in the absence of convection. 36: 1427—1964

—— Calculation of dynamic-pressure changes in the presence of free convection. 36: 1435—1964
Gericke, Otto R. Dual-frequency ultrasonic pulse-echo testing. 36: 313—1964
—— Ultrasonic spectroscopy of steel. 36: 1019(A)—1964
Germano, J. F., R. Halley, and W. B. Allen. Real-time electronic spectrograph for analysis of acoustic transients. 36: 2015(A)—1964
Ghering, Walter L. High-Q quartz-crystal system for use in absorption measurements. 36: 2000(A)—1964
Ghosh, Ranjit (see Sen Gupta, Ratneswar). 36: 1118—1964
Gibson, R. W. (see Brockelsby, C. F.). 36: 1234—1964
Gish, Keith D. (see Tillman, Tom W.). 36: 969(L)—1964
Gittelman, Joseph N. Performance of optimum detection receivers in amplitude-fading channels. 36: 2015(A)—1964
Gjaevenes, Kjell (see Vigran, Erik). 36: 1468—1964
Glaser, Edmund M. Stimulator for complex acoustic waveforms. 36: 1288—1964
Glattke, T. J. (see Daniloff, R. G.). 36: 1733(L)—1964
Gleiss, Norman and Eberhard Zwicker. Loudness function in the presence of masking noise. 36: 393(L)—1964
Gnanadesikan, R. (see Becker, M. H.). 36: 1988(A)—1964
Gocht, R. (see Anderson, G.). 36: 140—1964
Gogos, Creighton M. (see Wiener, Francis M.). 36: 1035(A)—1964
Gold, Bernard. Experiment with speechlike phase in a spectrally flattened pitch-excited channel vocoder. 36: 1892—1964
—— Note on buzz-hiss detection. 36: 1030(AN), 1659—1964
—— **and C. M. Rader.** Bandpass compressor. 36: 1022(A)—1964
—— **and Charles Rader.** Bandpass compressor: a new type of speech-compression device. 36: 1215(L)—1964
—— (see Daggett, N. L.). 36: 1030(A)—1964
—— (see Tierney, Joseph). 36: 1901—1964
Goldberg, J. L. New method for the accurate standardization of mechanical oscillations of small amplitude. 36: 1922—1964
Golden, Roger M. Erratum: Digital computer simulation of a sampled-data voice-excited vocoder [J. Acoust. Soc. Am. 35, 1358–1366 (1963)]. 36: 398(L)—1964
——, **D. J. MacLean, and A. J. Prestigiacomo.** Frequency multiplex system for a 10-spectrum-channel voice-excited vocoder. 36: 1022(A), 1962(L)—1964
Goldsberry, T. G. and C. W. Horton. Circumferential waves in a gapped cylinder. 36: 2000(A)—1964
Goldstein, Robert. Review of *Audiology* (second edition) by Hayes A. Newby. 36: 2251—1964
Goodfriend, Lewis S. Report on the acoustical requirements of religious buildings. 36: 1033(T)—1964
—— (see Ostergaard, Paul B.). 36: 1024(A)—1964
Goodier, J. N. and F. B. Fuller. Turning-point peculiarities in the near-resonant response of slightly tapered membrane strips. 36: 1491—1964
Gordon, Colin. Techniques for the control of transformer noise. 36: 1037(A)—1964
Gourevitch, George. Auditory masking in the rat. 36: 1007(A)—1964
Green, Charles E. Transdec is operational. 36: 2017(A)—1964
Green, David M. Continuous versus gated masking for noise and sinusoidal maskers. 36: 2009(A)—1964
—— General prediction relating yes-no and forced-choice results. 36: 1042(A)—1964
Green, P. S. Spectral broadening of acoustic reverberation in Doppler-shift fluid flowmeters. 36: 1383—1964
Green, Robert E., Jr. Reflection of an underwater shock wave from an overlying ice layer. 36: 603(L)—1964
Greene, Charles R. and Beaumont M. Buck. Arctic Ocean ambient noise. 36: 1218(L)—1964
—— (see Buck, Beaumont M.). 36: 1526—1964
Greene, James W. Instrumentation for impulse-noise measurements. 36: 1036(T)—1964
Greenfield, Elliott C. (see Tonndorf, Juergen). 36: 1049(A)—1964
Greensite, A. L. New method for calculating the vibrational frequencies and mode shapes for inhomogeneous beams. 36: 446—1964
Greenspan, Martin and Carl E. Tschiegg. Audio frequency compliances of prestressed quartz, fused silica, and aluminum. 36: 450—1964
Greenspon, Joshua E. Farfield-noise prediction from nearfield-spectrum measurements. 36: 604(L)—1964
—— **and Charles H. Sherman.** Mutual-radiation impedance and nearfield pressure for pistons on a cylinder. 36: 149—1964
—— (see Junger, M. C.). 36: 1026(A)—1964
Griffith, E. D., R. N. Hancock, and C. M. Raulston, Jr. Laboratory simulation of aircraft-propeller noise. 36: 1035(A)—1964
Griffith, G. and R. Wren. Vibrational and acoustics facilities at manned spacecraft center. 36: 1995(A)—1964
Griffiths, J. W. R. and N. P. Murarka. Variation of sensitivity of solid dielectric capacitance transducers. 36: 970(L)—1964
Gruner, William J. and Garland Johnston. Engineering approach to prediction of space-vehicle acoustic environments. 36: 1036(A)—1964
Guieysse, L. and P. Sabathé. *Acoustique Sous-Marine* reviewed by V. M. Albers. 36: 981—1964
Guirao, Miguelina and S. S. Stevens. Measurement of auditory density. 36: 1176—1964
—— (see Stevens, Joseph C.). 36: 1028(A), 2210—1964
Gupta, Ratneswar Sen (see Sen Gupta, Ratneswar).
Guthrie, Albert N. and John Shaffer. Variability in acoustic output of deep explosive sources. 36: 2293—1964
Guttman, Newman and J. L. Flanagan. Pitch of high-pass-filtered pulse trains. 36: 757—1964
——, **W. A. van Bergeijk, and L. D. Harmon.** Backward enhancement of binaural fusion. 36: 1029(A)—1964
—— (see Flanagan, J. L.). 36: 1654—1964

H

Haas, R. S. and F. H. Middleton. Iteration techniques in computer study of flooded cylindrical radiators. 36: 1026(A)—1964
Hafter, Ervin R., Walter T. Bourbon, Anne S. Blocker, and Ann Tucker. Detection of lateral movement under antiphasic masking conditions. 36: 1991(A)—1964
—— **and Lloyd A. Jeffress.** Lateralization of tones and clicks. 36: 1041(A)—1964
Hall, J. L., II. Minimum detectable change in interaural time or intensity difference for brief impulsive stimuli. 36: 2411(L)—1964
Hall, Jody C. (see Hutchins, Carleen). 36: 1052(A)—1964
—— (see Kent, Earle L). 36: 1033(A), 2018(T)—1964
Halle, Morris. Review of *Phonologic Studies of Quantity in Swedish. Based on material from Stockholm speakers. (Monografier utgivna av Stockholms kommunal-förvaltning 27.)* by Claes-Christian Elert. 36: 2429—1964
Halley, R. (see Germano, J. F.). 36: 2015(A)—1964
Hampton, L. D. Acoustic properties of sediments. 36: 1993(A)—1964
Hance, Harold V. Light diffraction by ultrasonic waves as a multiple-scattering process. 36: 1034(A)—1964
Hancock, R. N. (see Griffith, E. D.). 36: 1035(A)—1964

Hanna, Dean A. Dumiload: a variable-radiation-impedance simulator. **36**: 1012(A)—1964
Hanna, George R. Neural-information processing in the peripheral auditory system of the guinea pig. **36**: 1016(A)—1964
Hansen, Palle G. Measurement of attenuation of 5- to 8-kc/sec sound in small samples of sea water. **36**: 1998(A)—1964
Hansen, Robert A. (see Kodaras, Michael J.). **36**: 565—1964
Harbold, Mary L. and Bruce Steinberg. Scattering of plane acoustic waves by arrays. **36**: 1010(A)—1964
Hargrove, L. E. Successive diffraction theory for diffraction of light by ultrasonic waves of arbitrary waveform. **36**: 323—1964
Harlow, R. George and Ronald Kitching. Absorption of sound in mixtures of oxygen and water vapor. **36**: 1100—1964
Harmon, L. D. (see Guttman, Newman). **36**: 1029(A)—1964
Harris, Cyril M. Review of *Engine Noise—Analysis and Control* by C. H. Bradbury. **36**: 800—1964
—— **and W. Tempest.** Absorption of sound in air below 1000 cps. **36**: 2390—1964
—— **and W. Tempest.** Absorption of sound in oxygen/water mixtures. **36**: 2416(L)—1964
—— **and Mark R. Weiss.** Effects of speaking condition on pitch. **36**: 933—1964
Harris, J. D. Békésy audiometry at 20 frequencies from 0.2 to 6 kc/sec. **36**: 1954(L)—1964
—— Hearing-loss trend curves and the damage-risk criterion in diesel-engineroom personnel. **36**: 1050(A)—1964
—— Sound shadow cast by head and ears. **36**: 1049(A)—1964
—— (see Clack, T. D.). **36**: 1007(A)—1964
—— (see Smith, P. F.). **36**: 1050(A)—1964
Harrison, Mark. New method of deriving the reflection coefficient for a fluid layer. **36**: 1039(A)—1964
Hart, R. W. (see Cantrell, R. H.). **36**: 697—1964
Hartog, J. J. (see Knollman, G. C.). **36**: 521—1964
Harvey, G. (see Holywell, K.). **36**: 210(L)—1964
Hawkins, Joseph E., Jr., and Valerie Beger. Normal cytoarchitecture of Corti's organ by phase-contrast microscopy. **36**: 1996(A)—1964
—, **Valerie Beger, and Jean-Marie Aran.** Cytoarchitectural changes in Corti's organ after kanamycin treatment and acoustic trauma. **36**: 1997(A)—1964
—— (see Aran, Jean-Marie). **36**: 1996(A)—1964
Haydl, W. H., K. Blötekjaer, and C. F. Quate. Coupling to hypersonic waves. **36**: 1670—1964
Hays, Earl E. (see Baxter, Lincoln, II). **36**: 1015(A), 2124—1964
Heaps, H. S. Effect of turbulence on a distant transducer. **36**: 1998(A)—1964
Heckl, Manfred A. Investigations on the vibrations of grillages and other simple beam structures. **36**: 1335—1964
Hehmann, H. W. Impact-noise measurements for some floated-floor construction. **36**: 1024(A)—1964
Heinz, John M. and Kenneth N. Stevens. On the derivation of area functions and acoustic spectra from Cinéradiographic films of speech. **36**: 1037(A)—1964
Hellman, Rhona P. and J. Zwislocki. Loudness function of a 1000-cps tone in the presence of a masking noise. **36**: 1618—1964
Hemdal, John F. and George W. Hughes. On the applications of distinctive features to speech recognition. **36**: 1039(A)—1964
Hemphill, R. B. and R. N. Claytor. Broad-band excitation of microwave ultrasonic waves. **36**: 2011(A)—1964
Hempkins, W. B. (see Barnard, G. R.). **36**: 1015(A), 2119—1964
Henderson, Malcolm C. Review of *Proceedings of the International School of Physics Enrico Fermi. Course XXVII: Dispersion and Absorption of Sound by Molecular Processes, D. Sette, Director* published by Academic Press Inc. **36**: 1978—1964
—— Review of *Waves and Oscillations* by R. A. Waldron. **36**: 1752—1964
Henriquez, T. A. Diffraction constants of acoustic transducers. **36**: 267—1964
—— (see Sims, Claude C.). **36**: 1704—1964
Herbert, Richard E. Random vibrations of a nonlinear elastic beam. **36**: 2090—1964
Herrmann, G. (see Tasi, J.). **36**: 100—1964
Herscher, M. B. (see Martin, T. B.). **36**: 2001(A)—1964
Hickling, Robert. Analysis of echoes from a hollow metallic sphere in water. **36**: 1124—1964
Hilding, David A. Catechol amine activity in the inner ear: histochemical study by electron microscopy. **36**: 1016(A)—1964
Hill, R. F. (see D'Antinio, R. A.). **36**: 1044(A)—1964
—— (see LeBlanc, Lester R.). **36**: 1987(A)—1964
—— (see Tetreault, D. E.). **36**: 1044(A)—1964
Hinich, M. J. Optimal detection of an unknown discrete waveform that is recurring randomly in Gaussian noise. **36**: 2015(A)—1964
Hirsch, Peter. Calculation of the peak amplitudes of SOFAR signals. **36**: 1998(A)—1964
—— **and Marcia Shear.** On the calculation of focusing zones along the SOFAR axis. **36**: 1015(A)—1964
Hixson, E. L. (see Richie, William C.). **36**: 1990(A)—1964
Hoeft, Lothar O., Eugene Ackerman, and Adam Anthony. Measurement of the displacements and nonlinearities of the guinea-pig tympanum. **36**: 1836—1964
Hofmann, Renner B. and Stanley J. Laster. Application of multichannel processing to analysis of long-range refraction seismograms. **36**: 1990(A)—1964
Holywell, K. and G. Harvey. Helium speech. **36**: 210(L)—1964
Hoppmann, W. H., II, M. I. Cohen, and V. X. Kunukkasseril. Elastic vibrations of paraboloidal shells of revolution. **36**: 349—1964
—— (see Minkarah, I. A.). **36**: 470—1964
—— (see Seelig, J. M.). **36**: 93—1964
Horne, William (see Williams, A. O., Jr.). **36**: 1997(A)—1964
Horton, C. W. Reflection and scattering of sound by the sea bottom. Part III: Model studies. **36**: 2003(A)—1964
—— (see Goldsberry, T. G.). **36**: 2000(A)—1964
Horton, J. Warren. Underwater acoustics—1963 (response to presentation of Pioneers of Underwater Acoustics award). **36**: 607(AN)—1964
Hoskins, Hartley (see Caulfield, David D.). **36**: 1044(A)—1964
Houde, R. A., W. D. Larkin, and L. C. Stewart. Some modifications to the General Dynamics/Electronics formant vocoder. **36**: 2001(A)—1964
House, Arthur S. and Kenneth N. Stevens. Analysis of glide consonants. **36**: 1038(A)—1964
—— (see Paul, Allan P.). **36**: 303—1964
Hovan, Kenneth S. (see Hunter, Joseph L.). **36**: 1040(A)—1964
Howard, C. R. Real-time measurement of pitch perturbations. **36**: 1048(A)—1964
Howkins, S. D. Experimental studies of controlled cavitation. **36**: 1009(A)—1964
Hudimac, A. A. Extension of the Kirchoff–Helmholtz equation. **36**: 1998(A)—1964

Hudson, J. A. (see Knopoff, L.). **36**: 338—1964
Huggins, A. W. F. Distortion of the temporal pattern of speech: interruption and alternation. **36**: 1055—1964
Hughes, Darrell S. Elastic properties of solids at high pressure and temperature. **36**: 1990(A)—1964
Hughes, George W. (see Hemdal, John F.). **36**: 1039(A)—1964
Hunt, F. V. Remarks on the mean free path problem. **36**: 556—1964
——, **R. Bruce Lindsay, and George W. Wood.** ICA and international cooperation in acoustics. **36**: 1228(AN)—1964
—— (see Barger, James E.). **36**: 1589(L)—1964
Hunter, Joseph L. Review of *Sound and Ultrasound Waves in Air, Water, and Solid Bodies* (*Zvukovye i ul'trazukovye volny v vozdukhe, vode, i tverdykh telakh*) by V. A. Krasil'nikov. **36**: 1608—1964
—— **and Henry D. Dardy.** Ultrahigh-frequency ultrasonic absorption cell. **36**: 1914—1964
—— **and Kenneth S. Hovan.** Classical ultrasonic absorption in liquid gallium. **36**: 1040(A)—1964
——, **C. J. Montrose, and J. H. Shively.** Viscoelastic constants of a short-chain polymer. **36**: 953—1964
Huntley, Ralph and Paul B. Ostergaard. Description of the Cedar Knolls Acoustical Laboratories. **36**: 1024(A)—1964
Hurdle, Burton G., Raymond H. Ferris, and Kenneth D. Flowers. Effect of transducer velocity on the structure of signals scattered from the ocean bottom. **36**: 1936—1964
—— **and Kenneth D. Flowers.** Effect of geometry on monostatic scattering from the ocean bottom. **36**: 1993(A)—1964
Hutchins, Carleen M. Comparison of the acoustical and constructional parameters of the conventional 16 to 17-in. viola and the new 20-in. vertical viola. **36**: 1025(A)—1964
—— **and Jody C. Hall.** Musical sources. Symposium on musical acoustics. II. (Acoustical Society of America meeting.) **36**: 1052(A)—1964
Hutchinson, J. R. (see Flügge, W.). **36**: 1052(A)—1964

I

Igarashi, Y. and L. Beck. Directional localization of sound from two plane-wave sources. **36**: 1263—1964
Ingalls, Clyde E. Sensation of hearing in electromagnetic fields. **36**: 1997(A)—1964
—— Transient response of pipes. **36**: 2014(A)—1964
Ingard, Uno (see Gentle, Kenneth W.). **36**: 1999(A)—1964
Ingenito, F. (see Williams, A. O., Jr.). **36**: 1032(A)—1964
Ingles, A. R. Effect of pressure reduction and temperature variation on the performance of a double form of Helmholtz resonator. **36**: 816—1964
Irwin, Stevens. *Dictionary of Hammond Organ Stops* reviewed by Wilmer T. Bartholomew. **36**: 1234—1964
—— *Dictionary of Pipe Organ Stops* reviewed by W. C. Wayne, Jr. **36**: 2429—1964

J

Jack, William A. Symposium on sound-insulation requirements for multidwelling buildings: Foreword. **36**: 718—1964
Jacobs, W. R. (see Tsakonas, S.). **36**: 1569, 1708—1964
Jacobson, M. J. Analysis of spreading loss for refracted/reflected rays in constant-velocity-gradient media. **36**: 2298—1964
—— (see Liggett, W. S., Jr.). **36**: 1183—1964
—— (see Weingarten, V. I.). **36**: 2013(A)—1964
Jaffe, Sol S. (see Brummet, B. D.). **36**: 1590(L)—1964
Jasonides, J. G. (see Cottis, M. G.). **36**: 1046(A)—1964
Jeffress, Lloyd A. Stimulus-oriented approach to detection. **36**: 766—1964
——, **Charles S. Watson, Mark E. Rilling, and Walter T. Bourbon.** Theoretical and obtained ROC curves for antiphase stimulation. **36**: 1991(A)—1964
—— (see Hafter, Ervin R.). **36**: 1041(A)—1964
—— (see Langford, Ted L.). **36**: 1042(A), 1455—1964
—— (see Rilling, Mark E.). **36**: 1041(A), 1991(A)—1964
Jerger, J., editor. *Modern Developments in Audiology* reviewed by Lennart L. Kopra. **36**: 2428—1964
Jerger, James and Susan Wood. Critical evaluation of SAL audiometry. **36**: 2007(A)—1964
Johnson, F. R. (see Beranek, Leo L.). **36**: 1247—1964
Johnson, Russell. Acoustics of Clowes Memorial Hall, Butler University, Indianapolis, Indiana. **36**: 1012(A)—1964
—— Acoustics of La Grande Salle, Place des Arts, Montréal, P. Q., Canada. **36**: 1011(A)—1964
Johnston, Garland (see Gruner, William J.). **36**: 1036(A)—1964
Jones, Earle. Use of high-strength ceramics in vibration transducers. **36**: 1215(L)—1964
Jones, J. D. Experimental and theoretical investigation of the sound field of a corrugated acoustic waveguide. **36**: 2010(A)—1964
Jones, J. L., C. B. Leslie, and L. E. Barton. Acoustic characteristics of underwater bottoms. **36**: 154—1964
Jones, Margaret Hubbard (see Carterette, Edward C.). **36**: 1989(A)—1964
Jordan, A. Raymond. Geo-sound sources. **36**: 2008(T)—1964
Jorgensen, Donald W. (see DeMetz, Fred C.). **36**: 1044(A)—1964
Jorgensen, Richard (see Carmeci, Peter). **36**: 1959(L)—1964
Junger, M. C. and J. E. Greenspon. Methods for analyzing the radiation loading of finite cylindrical transducers. **36**: 1026(A)—1964
—— (see Rattayya, J. V.). **36**: 878—1964

K

Kagiwada, R. (see Finch, R. D.). **36**: 1009(A)—1964
Kalnins, A. Effect of bending on vibrations of spherical shells. **36**: 74—1964
—— Free vibration of rotationally symmetric shells. **36**: 1355—1964
—— Method for the analysis of free vibration of rotationally symmetric shells. **36**: 1051(A)—1964
Kammer, E. W. Transducer-thickness effects in measuring ultrasonic velocities. **36**: 1594(L)—1964
Kamo, R. (see Peter, A. C.). **36**: 1044(A)—1964
Kantarges, George T. (see Lansing, Donald L.). **36**: 2222—1964
Karal, Frank C., Jr. (see Keller, Joseph B.). **36**: 32—1964
Karbo, Donald J. Effects of shading on minor-lobe level and beamwidth in symmetrical uniformly spaced 6- and 4-element arrays. **36**: 838—1964
Karplus, Henry B. Investigation of fluid flow over flexible surfaces. **36**: 1044(A)—1964
—— **and J. Michael Clinch.** Sound propagation in two-phase fluids. **36**: 1040(A)—1964
Kato, Yasuo. Analysis of liquid consonants. **36**: 1989(A)—1964
Kaufman, M. G. Experimental 600-ft electrosonic delay line. **36**: 1861—1964
Kaufman, Roger S. (see Tonndorf, Juergen). **36**: 1049(A)—1964
Kaul, R. K. and J. J. McCoy. Propagation of axisymmetric waves in a circular semiinfinite elastic rod. **36**: 653—1964

Keane, John J. (see Burstein, Aaron W.). **36**: 1596(L)—1964
Keir, D. L. (see Bucker, H. P.). **36**: 1595(L)—1964
Keith, R. W. (see Daniloff, R. G.). **36**: 1733(L)—1964
Keller, Joseph B. and Frank C. Karal, Jr. Geometrical theory of elastic surface-wave excitation and propagation. **36**: 32—1964
Kelton, G. (see Bricout, P. A.). **36**: 1035(A)—1964
Kendig, Paul M. and Hugh J. Clarke. Experimental liquid-filled transducer array for deep-ocean operation. **36**: 2005(A)—1964
Kent, Earle L. Ear and music. **36**: 2018(T)—1964
—— **and Jody C. Hall.** Acoustics of musical instruments. **36**: 2018(T)—1964
—— **and Jody C. Hall.** Audio-visual aids for the study of musical sounds. **36**: 1033(A)—1964
—— (see Benade, Arthur H.). **36**: 1052(A)—1964
Kersta, L. G. and M. L. Schwartz. Heartprints and other body sounds. **36**: 1050(A)—1964
—— (see Schwartz, M. L.). **36**: 2008(A)—1964
Kerwin, Edward M., Jr. (see Ungar, Eric E.). **36**: 386—1964
Khabbaz, Ghassan R. Internal sound in a cylindrical shell, due to an external random pressure field. **36**: 2013(A)—1964
—— (see Crandall, Stephen H.). **36**: 1330—1964
Kirk, Roger E. Effects of low-intensity noise on monitoring performance. **36**: 2010(A)—1964
Kirschner, Francis and Paul Baratoff. Experimental investigation of large helical coil springs for ground-shock attenuation. **36**: 1995(A)—1964
Kistler, A. L. Fluctuating wall pressure under a separated supersonic flow. **36**: 543—1964
Kitching, Ronald (see Harlow, R. George). **36**: 1100—1964
Klein, G. Harold. Random excitation of a nonlinear system with tangent elasticity characteristics. **36**: 2095—1964
Kleiner, Richard T. (see Otten, Klaus W.). **36**: 1039(A)—1964
Klepper, David L. and B. G. Watters. Evaluating the acoustics of a completed auditorium. **36**: 1011(A)—1964
—— (see Watters, B. G.). **36**: 1010(A)—1964
Knollman, G. C. Correlation of amplitude and phase fluctuations for wave propagation in a medium with random, spheroidal inhomogeneities. **36**: 2306—1964
—— Fluctuation correlations in randomly inhomogeneous media. **36**: 1998(A)—1964
—— Wave propagation in a medium with random, spheroidal inhomogeneities. **36**: 681—1964
—— **and J. J. Hartog.** Hydroacoustic scattering from a pair of fluid spheres. **36**: 521—1964
Knopoff, L. and J. A. Hudson. Scattering of elastic waves by small inhomogeneities. **36**: 338—1964
Knudsen, Vern O. Tribute to Professor Erwin Walter Meyer on the occasion of his 65th birthday. **36**: 1402(AN)—1964
—— (see Leonard, R. W.). **36**: 1010(A), 2328—1964
Kodaras, Michael J. Noise control and the New York City Code Project. **36**: 1036(A)—1964
—— **and Robert A. Hansen.** Measurement sound-transmission loss in the field. **36**: 565—1964
Kohut, J. (see Pfafflin, Sheila M.). **36**: 2009(A)—1964
Koidan, Walter. Measurements of electromechanical coupling in condenser microphones. **36**: 1013(A)—1964
—— Problems in microphone absolute calibration. **36**: 1019(T)—1964
—— **and David S. Siegel.** Free-field correction for condenser microphones. **36**: 2233—1964
Kopra, Lennart L. Review of *Modern Developments in Audiology* edited by J. Jerger. **36**: 2428—1964
Koshikawa, T. and T. Nakayama. Fundamental methodology for the evaluation of sound quality and some results of its application. **36**: 2007(A)—1964
Koval, Leslie R. (see Bhuta, Pravin G.). **36**: 2071—1964
Kranz, Fred (see Davis, Hallowell). **36**: 1450—1964
Krasil'nikov, V. A. *Sound and Ultrasound Waves in Air, Water, and Solid Bodies* (*Zvukovye i ul'trazukovye volny v vozdukhe, vode, i tverdykh telakh*) reviewed by Joseph L. Hunter. **36**: 1608—1964
Kraus, H. (see Tsui, T.). **36**: 1999(A)—1964
Krause, Fritz R. Application of the crosscorrelation technique to wall-pressure fluctuations below free shear layers and oscillating shocks. **36**: 1046(A)—1964
Kryter, K. D. Errata: Method for the calculation and use of the articulation index [J. Acoust. Soc. Am. **34**, 1689–1697 (1962)]. **36**: 1393(L)—1964
—— **and K. S. Pearsons.** Modification of noy tables. **36**: 394(L)—1964
Kühn, G. J. Symmetry of energy-transfer ratios for elastic waves at a boundary between two media. **36**: 423—1964
—— (see Lutsch, A.). **36**: 428—1964
Kunukkasseril, V. X. (see Hoppmann, W. H., II). **36**: 349—1964
Kuo, E. Y. T. Wave scattering and transmission at irregular surfaces. **36**: 2135—1964
Kuruvilla, Thomas (see Tillman, Tom W.). **36**: 582—1964
Kuzneski, J. A. (see Flad, F. R.). **36**: 2005(A)—1964

L

Ladefoged, Peter. Physiological parameters of spech. **36**: 1037(A)—1964
Lallement, Bruno and Paul Stangerup. Reflectivity of deep sedimentary bottoms. **36**: 1993(A)—1964
Lambert, R. F. Space-time correlations on random noise above a reflecting plane. **36**: 788(L)—1964
Lane, H. L. (see Cross, D. V.). **36**: 1047(A)—1964
—— (see Schneider, B. A.). **36**: 1958(L)—1964
Lang, William W. (see Nordby, Knut S.). **36**: 2013(A)—1964
Lange, James N. Pulse propagation in cylinders at the lower ultrasonic frequencies. **36**: 2000(A)—1964
Langenecker, B. (see Frandsen, W. H.). **36**: 1034(A)—1964
Langford, Ted L. and Lloyd A. Jeffress. Effect of noise crosscorrelation for a narrow-band masking noise on the detection of a tonal signal. **36**: 1042(A)—1964
—— **and Lloyd A. Jeffress.** Effect of noise crosscorrelation on binaural signal detection. **36**: 1455—1964
Langhaar, H. L. (see Liu, C. K.). **36**: 354—1964
Lansing, Donald L., Charles E. Watkins, and George T. Kantarges. Oscillating pressures within a cylindrical chamber that has a circular piston in one end wall. **36**: 2222—1964
Larkam, C. W. Solion linear acoustic detectors of the polarized cathode type. **36**: 1013(A)—1964
—— **and G. Earle English.** Response characteristics of polarized cathode solion linear acoustic transducers. **36**: 2010(A)—1964
Larkin, W. D. (see Houde, R. A.). **36**: 2001(A)—1964
Larson, G. S. (see Carnevale, E. H.). **36**: 1678, 1999(A)—1964
Laster, Stanley J. (see Hofmann, Renner B.). **36**: 1990(A)—1964
Law, A. and R. B. Lindsay. Ultrasonic attenuation and velocity in heavy water vapor. **36**: 601(L)—1964
Lawrence, Walter. Role of synthetic speech in speech research. **36**: 1022(A)—1964
Lawther, J. M. (see Rockwell, T. H.). **36**: 1507—1964

LeBlanc, Lester R. and R. F. Hill. Measurement and analysis of underwater acoustic backscattering from a model ocean surface. **36**: 1987(A)—1964

Lee, R. P. (see Diamond, Marvin). **36**: 1991(A)—1964

Lee, T. M. Dilatation constants and complex ratio from forced vibration of a free viscoelastic sphere. **36**: 458—1964

—— Spherical waves in viscoelastic media. **36**: 2402—1964

Leehey, Patrick. Radiation field of a symmetrically oscillating two-dimensional cavity flow. **36**: 1044(A)—1964

Lehman, Paul R. Harmonic structure of the tone of the bassoon. **36**: 1649—1964

Leonard, H. W. (see Walton, W. C., Jr.). **36**: 1995(A)—1964

Leonard, R. W. Probe-tube microphones. **36**: 1867—1964

——, **L. P. Delsasso, and V. O. Knudsen.** Diffraction of sound by an array of rectangular reflective panels. **36**: 1010(A), 2328—1964

Leroy, C. C. Sound attenuation between 200 and 10 000 cps measured along single paths. **36**: 1014(A)—1964

—— NATO advanced study institute on signal processing. **36**: 2424(AN)—1964

Leslie, Charles B. Underwater noise produced by bullet entry. **36**: 1138—1964

—— (see Jones, J. L.). **36**: 154—1964

Levin, Franklyn K. Development of seismic modeling. **36**: 2008(T)—1964

Lewis, James W. L. and F. Douglas Shields. Sound absorption and velocity in water vapor. **36**: 1593(L)—1964

Lewis, R. C. (see DeChico, R. A.). **36**: 2017(A)—1964

Li, Kung-Pu. Machine recognition of Mandari monosyllable. **36**: 1039(A)—1964

Liberman, A. M. (see Stevens, Kenneth N.). **36**: 1989(A)—1964

—— (see Studdert-Kennedy, M.). **36**: 1989(A)—1964

Liboff, Richard L. Collective sound mode in a two-component fluid. **36**: 661—1964

Lieberman, Philip. On "calibrating" the linguists' perception of "phonemic" pitch and stress levels. **36**: 1048(A)—1964

——, **Sheldon B. Michaels, and Henry I. Soron.** Emotional effects of fundamental-frequency transformations. **36**: 1048(A)—1964

—— (see Wathen-Dunn, Weiant). **36**: 2002(A)—1964

Liebermann, L. N. and R. A. Rasmussen. Propagation of displacement waves in the sea. **36**: 843—1964

Liggett, W. S., Jr., and M. J. Jacobson. Covariance of noise in attenuating media. **36**: 1183—1964

Lilly, David J. Some properties of the acoustic reflex in man. **36**: 2007(A)—1964

Lilly, John C. Airborne sonic emissions of *Tursiops truncatus* (*M*). **36**: 1007(A)—1964

—— Research with the Bottlenose Dolphin (*Tursiops truncatus*). **36**: 1033(T)—1964

Lin, Y. K. Nonstationary shot noise. **36**: 82—1964

Lindblom, Bjorn E. F. Articulatory activity in vowels. **36**: 1038(A)—1964

Lindsay, R. Bruce. Editorial: Applied acoustics and the *Journal*. **36**: 1787—1964

—— Excerpts from the report of the Editor-in-Chief to the Executive Council of the Society at the New York meeting, May 1964. **36**: 1741(AN)—1964

—— Report to the National Science Foundation on Conference on Education in Acoustics. **36**: 2241(AN)—1964

—— (see Hunt, F. V.). **36**: 1228(AN)—1964

—— (see Law, A.). **36**: 601(L)—1964

Linnette, Harry M. and Rory J. Thompson. Directivity study of the noise field in the ocean, employing a correlative dipole. **36**: 1788—1964

Litovitz, Theodore A. (see Slie, Warren M.). **36**: 1040(A)—1964

Liu, C. K. and H. L. Langhaar. Dilatationless circumferential modes of vibration of a ring. **36**: 354—1964

Liu, Shih-Ping. Chlorine-release test for cavitation measurements. **36**: 1019(A)—1964

Locanthi, B. N. Unfinished business with loudspeakers. **36**: 1019(T)—1964

Loeb, M., J. L. Fletcher, and R. Benson. Some preliminary studies of hearing loss with an arc-discharge impulse noise generator. **36**: 1050(A)—1964

——, **R. P. Smith, and J. L. Fletcher.** Effects of moderate doses of curare on acoustic-reflex function. **36**: 2007(A)—1964

Long, L. E. (see Fabian, R. W.). **36**: 1027(A)—1964

Lord, Arthur Edson, Jr. Longitudinal-wave ultrasonic measurements in iron up to 400°C. **36**: 2236(L)—1964

Lord, Gary E. Variance of the bearing angle of a discrete linear-difference array in a random transmission medium. **36**: 1545—1964

—— **and Stanley R. Murphy.** Reception characteristics of a linear array in a random transmission medium. **36**: 850—1964

—— (see Murphy, Stanley R.). **36**: 1598(L)—1964

Lord, Norman W. Fluctuating acoustic refraction in the deep water of the Caribbean Sea. **36**: 1043(A)—1964

—— Precise timing of underwater sound, using phase-reversed pulses. **36**: 1043(A)—1964

Lowenstein, C. D. Synthesis of directive arrays: realization. **36**: 1012(A)—1964

Lubell, A. H. Farfield patterns of a line array of noise sources. **36**: 1045(A)—1964

—— Power-output capability of a piezoelectrically driven Tonpilz transducer. **36**: 1026(A)—1964

Lucas, Robert L. Experiments in tactile speech perception. **36**: 1051(A)—1964

Lugt, Hans J. and Peter Ugin̆cius. Acoustic rays in an ocean with heat source or thermal-mixing zone. **36**: 689—1964

Lummis, Robert C. Pulse thresholds with selective masking. **36**: 1028(A)—1964

Lund, G. R. and R. J. Urick. Vertical coherence of explosive reverberation. **36**: 1015(A)—1964

—— (see Urick, R. J.). **36**: 2164—1964

Lutsch, A. and G. J. Kühn. Generation and reception of elastic waves via a plane boundary. **36**: 428—1964

Lynnworth, L. C. Ultrasonic impedance matching from solids to gases. **36**: 1999(A)—1964

—— (see Carnevale, E. H.). **36**: 1678, 1999(A)—1964

Lyon, Richard H. Panel excitation by high-speed boundary-layer turbulence. **36**: 1045(A)—1964

—— **and Ewald Eichler.** Random vibration of connected structures. **36**: 1344—1964

M

Mabie, H. H. and C. B. Rogers. Transverse vibrations of tapered cantiliver beams with end loads. **36**: 463—1964

Mackenzie, K. V. Long-range shallow-water transmission measurements. **36**: 1014(A)—1964

MacLean, D. J. (see Golden, Roger M.). **36**: 1022(A), 1962(L)—1964

MacNeilage, Peter F. Electromyographic study of the coarticulation of vowels and consonants. **36**: 1989(A)—1964

Macpherson, J. D. and N. O. Fothergill. Acoustic propagation in the Nova Scotian sound channel. **36**: 1014(A)—1964

Maestrello, Lucio. Measurement of noise radiated by boundary-layer-excited panels. **36**: 2012(A)—1964
Mahalingam, S. Natural frequencies of a uniform square plate bounded by flexible beams. **36**: 1964(L)—1964
Maidanik, Gideon (see Manning, Jerome E.). **36**: 1691—1964
—— (see Williams, J. E. Ffowcs). **36**: 1045(A)—1964
Major, M. W. Strain seismometers. **36**: 2008(T)—1964
Malek, Rita (see Fry, William J.). **36**: 1795—1964
Maling, George C., Jr. Comments on "Radiation impedance of a source near reflectors" by R. V. Waterhouse. **36**: 781(L)—1964
Malme, Charles I. (see Dyer, Ira). **36**: 1033(A)—1964
—— (see Wiener, Francis M.). **36**: 1035(A)—1964
Malmquist, Carolyn (see Dirks, Donald D.). **36**: 1992(A)—1964
Mangulis, Visvaldis. Coupling of array elements in a nonrigid baffle. **36**: 1737(L)—1964
—— Kramers–Kronig or dispersion relations in acoustics. **36**: 211(L)—1964
—— Pressure on a vibrating circular piston in an infinite baffle. **36**: 1734(L)—1964
—— Relation between the radiation impedance, pressure in the far field, and baffle impedance. **36**: 212(L)—1964
Manning, Jerome E. and Gideon Maidanik. Radiation properties of cylindrical shells. **36**: 1691—1964
—— (see Crandall, Stephen H.). **36**: 1330—1964
Mariner, T. Criticism of the ISO impact-noise test. **36**: 1024(A)—1964
Markowitz, Joseph. Investigation of the dynamic properties of the neural-quantal model. **36**: 2010(A)—1964
Marsh, H. W. Reflection and scattering of sound by the sea bottom. Part I: Theory. **36**: 2003(A)—1964
Marshall, J. R. and R. P. Chapman. Reverberation from a deep scattering layer measured with explosive sound sources. **36**: 164—1964
Martens, Alex E. Calibration of audiometers. **36**: 775—1964
Martin, Daniel W. Acoustics of keyboard instruments. **36**: 2018(T)—1964
—— Church acoustics and electronic organs. **36**: 1033(T)—1964
Martin, Gordon E. On the properties of segmented ferroelectric ceramic systems. **36**: 1012(A)—1964
—— On the theory of segmented electromechanical systems. **36**: 1366—1964
—— Vibrations of coaxially segmented, longitudinally polarized ferroelectric tubes. **36**: 1496—1964
Martin, Joseph E. Increased bandwidth for deep-submergence transducers. **36**: 1026(A)—1964
Martin, T. B., H. J. Zadell, A. L. Nelson, and M. B. Herscher. Speech recogntion, using analog threshold logic. **36**: 2001(A)—1964
Mason, Warren P., editor. *Physical Acoustics. Volume I, Part A: Methods and Devices* reviewed by Harry F. Olson. **36**: 1751—1964
—— Review of *Use in Industry of Elasticity Measurements in Metals with the Help of Mechanical Vibrations. Notes on Applied Science No. 30, National Physical Laboratory* by G. Bradfield. **36**: 1233—1964
—— **and T. B. Bateman.** Ultrasonic-wave propagation in pure silicon and germanium. **36**: 644—1964
Mathews, M. V. (see Becker, M. H.). **36**: 1988(A)—1964
—— (see Pfafflin, Sheila M.). **36**: 2009(A)—1964
—— (see Pruzansky, S.). **36**: 2041—1964
Mayer, Walter G. Light diffraction by ultrasonic waves for oblique incidence. **36**: 779(L)—1964
McCormack, K. (see Barnard, G. R.). **36**: 1998(A)—1964
McCoy, J. J. (see Kaul, R. K.). **36**: 653—1964
McDaniel, Oliver H. Harmonic distortion of spherical sound waves in water. **36**: 1998(A)—1964
McKinney, C. M. and C. D. Anderson. Measurements of backscattering of sound from the ocean bottom. **36**: 158—1964
McLeroy, E. G. (see Spitznogle, F. R.). **36**: 972(A)—1964
McMahon, G. W. Coupler-reciprocity system for hydrophone calibration at high pressures. **36**: 2311—1964
—— Experimental study of the vibrations or solid, isotropic, elastic cylinders. **36**: 85—1964
—— Performance of open ferroelectric ceramic cylinders in underwater transducers. **36**: 528—1964
—— Sensitivity of liquid-filled, end-capped, cylindrical, ceramic hydrophones. **36**: 695—1964
Medwin, H. Attenuation of guided, repeated shock waves in gases. **36**: 870—1964
—— (see Clay, C. S.). **36**: 1987(A), 2131—1964
Meecham, William C. Effect of surface curvature on boundary-layer noise. **36**: 1047(A)—1964
Meeks, Wilkinson. Anechoic surface for underwater sound. **36**: 2017(A)—1964
Megna, Joseph J. Pitch-period reiterating speech-compression system. **36**: 1030(A)—1964
Meijer, Paul H. E. (see Shah, B. P.). **36**: 327—1964
Meinhart, D. I. S. (see Flanagan, J. L.). **36**: 1030(A), 2001(A)—1964
Mellen, R. H. Doppler shift of sonar backscatter from the sea surface. **36**: 1395(L)—1964
Menotti, F. R., W. R. Schumacher, and S. R. Santaniello. Studies of observed and predicted values of bottom reflectivity as a function of incident angle. **36**: 1993(A)—1964
Mentel, T. J. and S. H. Chi. Experimental study of dilatational-versus distortional-straining action in material-damping production. **36**: 357—1964
Merrill, J. A. Broad-band hydrophone. **36**: 1027(A)—1964
Michaels, Sheldon B. (see Lieberman, Philip). **36**: 1048(A)—1964
—— (see Wathen-Dunn, Weiant). **36**: 2002(A)—1964
Middleton, F. H. (see Chieu, N. T.). **36**: 2005(A)—1964
—— (see Haas, R. S.). **36**: 1026(A)—1964
Mikaelian, D. O. Vestibular response to sound: single-unit recording from the vestibular nerve in fenestrated deaf mice (Df/Df). **36**: 1016(A)—1964
Miles, D. O. Direct mechanical determination of the dynamic response of diaphragms. **36**: 1471—1964
—— Dynamic pressure-gauge calibrator. **36**: 2012(A)—1964
Miller, James D. Auditory sensitivity of the chinchilla in quiet and in noise. **36**: 2010(A)—1964
——, **A. Maynard Engebretson, and Peter B. Weston.** Recording the waveforms of periodic acoustic signals at levels near and below 0.0002 μ bar. **36**: 1591(L); erratum 2234—1964
—— (see Weston, Peter B.). **36**: 2009(A)—1964
Miller, Joan E. Decapitation and recapitation, a study of voice quality. **36**: 2002(A)—1964
Miller, M. K. Acoustic wave motion along a periodic surface. **36**: 2143—1964
—— Phase variation of acoustic surface waves on a periodic surface. **36**: 2000(A)—1964
Miller, Norman D. and G. W. West. Acoustic simulation of underwater sounds. **36**: 1045(A)—1964
Milne, A. R. Underwater backscattering strengths of Arctic pack ice. **36**: 1551—1964
—— **and J. H. Ganton.** Ambient noise under Arctic-Sea ice. **36**: 855—1964
—— **and J. H. Ganton.** Temperature- and wind-dependent ambient noise under midwinter pack ice. **36**: 1994(A)—1964
Minkarah, I. A. and W. H. Hoppmann, II. Flexural vibrations of cylindrically aeolotropic circular plates. **36**: 470—1964

Mirsky, I. Axisymmetric vibrations of orthotropic cylinders. **36**: 2106—1964
—— Vibrations of orthotropic, thick, cylindrical shells. **36**: 41—1964
Misrahy, George A., 1919–1964. **36**: 1397(AN)—1964
Mitchell, Rhoda R. (see Schulman, Arthur I.). **36**: 2009(A)—1964
Mitra, M. Propagation of explosive sound in a layered liquid. **36**: 1145—1964
Mohammed, A. General definition of transducer coupling coefficient and some applications. **36**: 1012(A)—1964
Mole, John Henry, 1915–1963. **36**: 798(AN)—1964
Molina, Edward C., 1877–1964. **36**: 1601(AN)—1964
Møller, Aage R. Erratum: Transfer function of the middle ear [J. Acoust. Soc. Am. **35**, 1526–1534 (1963)]. **36**: 779(L)—1964
Montrose, C. J. (see Hunter, J. L.). **36**: 953—1964
Moose, P. H. (see Clapham, R. G.). **36**: 2016(A)—1964
Moran, D. A. (see Williams, W.). **36**: 2316—1964
Moseley, Donald S. Principles of ultrasonic imaging. **36**: 2017(A)—1964
Moskal, B. J. and J. P. Frederick. Impedance-tube technique for determining the fatigue properties of compliant tubes. **36**: 2011(A)—1964
Moushegian, George, Allen L. Rupert, and Milton A. Whitcomb. Brain-stem neuronal coding of binaural and monaural tones. **36**: 1017(A)—1964
——, **Allen Rupert, and Milton A. Whitcomb.** Medial superior-olivary-unit response patterns to monaural and binaural clicks. **36**: 196—1964
——, **Milton A. Whitcomb, and Allen Rupert.** Neuronal periodicities to tones in feline auditory medulla. **36**: 1996(A)—1964
—— (see Rupert, Allen L.). **36**: 1018(A)—1964
Mowbray, G. H. Perception and retention of verbal information presented during auditory shadowing. **36**: 1459—1964
Mraz, S. J. (see Carome, E. F.). **36**: 946—1964
Mullineaux, O. Charles. Echo-ranging device used to measure the size of a well at Camp Century. **36**: 1019(A)—1964
Munchhausen, H. V. Sound-reduction closures. **36**: 1024(A)—1964
Mundie, J. Ryland. Model of the encoding function of primary auditory neurons. **36**: 1017(A)—1964
Murarka, N. P. (see Griffiths, J. W. R.). **36**: 970(L)—1964
Murphy, Stanley R. and Gary E. Lord. Scattering from a sinusoidal surface—a direct comparison of the results of Marsh and Uretsky. **36**: 1598(L)—1964
—— (see Lord, Gary E.). **36**: 850—1964
Muster, Douglas and A. Christensen. Note on underwater horns. **36**: 2010(A)—1964
—— (see Clark, T. F.). **36**: 2004(A)—1964
—— (see Eubanks, R. A.). **36**: 1020(A)—1964
Mutschler, C. (see Teacher, C. F.). **36**: 1031(A)—1964

N

Nakayama, T. (see Koshikawa, T.). **36**: 2007(A)—1964
Nash, Harold E. J. Warren Horton (receives Pioneers of Underwater Acoustics award). **36**: 607(AN)—1964
Naugolnykh, K. Compression wave surrounding an expanding sphere. **36**: 1442—1964
—— Waves of finite amplitude. **36**: 1031(A)—1964
Naunton, Ralph F., B. S. Elpern, and H. B. Perlman. Objective measurement of eustachian-tube function. **36**: 1049(A)—1964
—— (see Butler, Robert A.). **36**: 917, 1029(A)—1964
—— (see Elpern, Barry S.). **36**: 1392(L)—1964
Nelson, A. L. (see Martin, T. B.). **36**: 2001(A)—1964
Neubauer, Werner G. and Louis R. Dragonette. Experimental determination of the freefield sound speed in water. **36**: 1685—1964
Neubert, V. H. Dynamic absorbers applied to a bar that has solid damping. **36**: 673—1964
Neustadt, Herbert M. Tuned audio amplifier with controllable resonant frequency provided by modification of a manufactured audio oscillator. **36**: 2234(L)—1964
Newby, Hayes A. *Audiology* (second edition) reviewed by Robert Goldstein. **36**: 2251—1964
Nichols, R. H., Jr. (see Senko, A.). **36**: 1987(A)—1964
Nieder, Philip C. Amplitude and phase effects of middle-ear-muscle activity. **36**: 2007(A)—1964
Nishi, R. Y. and R. F. Brown. Behavior of piezoceramic projector materials under hydrostatic pressure. **36**: 1292—1964
Noehren, Robert. Architectural acoustics as related to church music and the organ. **36**: 1033(T)—1964
Noll, A. Michael. Effects of head and air-leakage sidetone during monaural-telephone speaking. **36**: 598(L)—1964
—— Short-time spectrum and "cepstrum" techniques for vocal-pitch detection. **36**: 296—1964
—— **and M. R. Schroeder.** Short-time "cepstrum" pitch detection. **36**: 1030(A)—1964
Nolte, L. W. Necessity of adaptive receiver realizations. **36**: 2016(A)—1964
Nordby, Knut S. and William W. Lang. Electroacoustic transducer efficiency of *R*, *L*, and *C* components. **36**: 2013(A)—1964
Norris, A. B. Ray-tracing program for computing transmission-loss contours. **36**: 1015(A)—1964
Northrop, John, Loring E. Tyson, and Morris A. Ransons. Long-range multiple arrivals received at deep hydrophones from shots in the Gulf of Maine. **36**: 215(L)—1964
Northwood, T. D. Sound insulation and the apartment dweller. **36**: 725—1964
—— (see Olynyk, D.). **36**: 1024(A), 2171—1964
Novick, Arnold W. Derivative of travel time with respect to source angle for a layer of constant-velocity gradient. **36**: 1221(L)—1964
Nowak, Richard T. (see Caulfield, David D.). **36**: 1044(A)—1964
Nowinski, J. L. and S. R. Woodall. Finite vibrations of a free rotating anisotropic membrane. **36**: 2113—1964
Nyborg, Wesley L. Acoustic streaming near an undulating surface. **36**: 1033(A)—1964

O

O'Hare, George J. Numerical procedure for shock and Fourier analysis. **36**: 1020(A)—1964
Öhman, S. E. G. Numerical model for coarticulation, using a computer-simulated vocal tract. **36**: 1038(A)—1964
—— (see Stevens, Kenneth N.). **36**: 1989(A)—1964
Olsen, Wayne O. (see Dallos, Peter J.). **36**: 743—1964
Olson, Harry F. Review of *Linear Circuit Analysis* by Gerhard F. Paskusz and Bertram Bussell. **36**: 981—1964
—— Review of *Physical Acoustics. Volume I, Part A: Methods and Devices* edited by Warren P. Mason. **36**: 1751—1964
—— **and H. Belar.** Performance of a code-operated speech synthesizer. **36**: 1023(A)—1964
Olson, John R. Correlation measurements of surface-reflected acoustic signals for several sea states. **36**: 1987(A)—1964
Olynyk, D. and T. D. Northwood. Comparison of reverberation-room and impedance-tube absorption measurements. **36**: 1024(A), 2171—1964

Ostergaard, Paul B. and Ray Donley. Background-noise levels in suburban communities. **36**: 409—1964
—— **and Lewis S. Goodfriend.** Experience in the construction of an acoustical laboratory. **36**: 1024(A)—1964
—— (see Huntley, Ralph). **36**: 1024(A)—1964
Otten, Klaus W. and Richard T. Kleiner. Utilization of the redundancy of the phonemic transcription of speech for automatic-speech recognition. **36**: 1039(A)—1964

P

Packard, W. B. (see Flad, F. R.). **36**: 2005(A)—1964
Pakiser, L. C. Structure of the continental crest and upper mantle. **36**: 2008(T)—1964
Palfreeman, J. S. (see Brockelsby, C. F.). **36**: 1234—1964
Pallett, David S. Flexural-wave transmission properties of plate–joint systems. **36**: 2004(A)—1964
Pankau, Joseph W. (see Fry, William J.). **36**: 1795—1964
Papadakis, Emmanuel P. Diffraction of ultrasound radiating into an elastically anisotropic medium. **36**: 414—1964
—— Revised grain-scattering formulas and tables. **36**: 1019(A)—1964
Parke, N. G. (see Williams, W.). **36**: 2316—1964
Parker, Donald E. Single neural-unit response patterns from the auditory cortex of the guinea pig. **36**: 1017(A)—1964
Parks, P. E. (see Carome, E. F.). **36**: 946—1964
Paskusz, Gerhard F. and Bertram Bussell. *Linear Circuit Analysis* reviewed by Harry F. Olson. **36**: 981—1964
Pasonski, George E. Development of a missile-impact acoustic transponder. **36**: 2016(A)—1964
Patrick, Nelson G. and Charles R. Boner. Analysis of school instrumental music-room acoustics. **36**: 2014(A)—1964
Patterson, Robert B. Model of a rough boundary as a backscatterer of wave radiation. **36**: 1150—1964
Paul, Allan P., Arthur S. House, and Kenneth N. Stevens. Automatic reduction of vowel spectra: an analysis-by-synthesis method and its evaluation. **36**: 303—1964
Paulus, E. and E. H. Rothauser. Normalization of spectral information in a pulse-excited channel-vocoder system. **36**: 2002(A)—1964
—— **and E. H. Rothauser.** Pulse-excited vocoder system. **36**: 2002(A)—1964
Payne, F. A. Effect of ice cover on shallow-water ambient sea noise. **36**: 1943—1964
Pearsons, K. S. (see Kryter, K. D.). **36**: 394(L)—1964
Penhallow, W. S. and F. T. Dietz. Correlation of 630-cps shallow-water ambient noise with wind speed and wave-height. **36**: 2149—1964
Peralta, L. A. and S. Raynor. Initial response of a fluid-filled, elastic, circular, cylindrical shell to a shock wave in acoustic medium. **36**: 476—1964
Perlman, H. B. (see Naunton, R. F.). **36**: 1049(A)—1964
Perrone, A. J. (see Arase, T.). **36**: 1015(A)—1964
Peter, A. C. and R. Kamo. Some theoretical aspects of noise generation in shipboard water systems. **36**: 1044(A)—1964
Peters, Robert W. Perceived order of tone pulses. **36**: 1042(A)—1964
—— Temporal perception of tone pulses. **36**: 2009(A)—1964
Peterson, Arnold P. G. Melville Eastham 1885–1964. **36**: 1222(AN)—1964
Peterson, Ernest A. Auditory responses in certain lizards. **36**: 1008(A)—1964
Peterson, Roger H. Using time to identify noise sources in data-processing machinery. **36**: 1036(A)—1964
Pfafflin, Sheila M., M. V. Mathews, and J. Kohut. Detection of auditory signals in reproducible noise. **36**: 2009(A)—1964
Pfeiffer, Russell R. Response characteristics of some single units in the cochlear nucleus to tone-burst stimulation. **36**: 1017(A)—1964
Pfende, Egon. Comments on "Experimental study of the vibrations of solid, isotropic, elastic cylinders," by G. W. McMahon. **36**: 1965(L)—1964
Philips, Charles M. and Roger A. Cutt. Two transient-free switches. **36**: 1955(L)—1964
Pickett, J. M. and D. C. Coulter. Prediction of the course of F2 across consonants. **36**: 1031(A)—1964
Piercy, J. E. On conformational analysis and the ultrasonic relaxation in methyl cyclohexane. **36**: 1040(A)—1964
—— (see Subrahmanyam, S. V.). **36**: 1040(A)—1964
Piggott, C. L. Ambient sea noise at low frequencies in shallow water of the Scotian Shelf. **36**: 2152—1964
Piip, Ants T. Fine structure and stability of the sound channel in the ocean. **36**: 1948—1964
Pikler, A. G. (see Smith, P. F.). **36**: 1050(A)—1964
Pinkham, R. S. (see Becker, M. H.). **36**: 1988(A)—1964
Piraux, Henry. *Dictionnaire générale d'acoustique et d'électroacoustique* reviewed by Austin R. Frey. **36**: 1752—1964
Plomp, R. Rate of decay of auditory sensation. **36**: 277—1964
—— The ear as a frequency analyzer. **36**: 1628—1964
Plumblee, Harry E. and Fred F. Rudder. Theoretical and experimental comparison of the modes of vibration for a stiffened pressurized cylinder. **36**: 1051(A)—1964
Plunkett, Robert. Effect of contact area on mechanical-impedance measurements. **36**: 1965(L)—1964
Pohle, F. V. (see Biot, M. A.). **36**: 1110—1964
Pollack, Irwin. Consistency of identification of consonants heard in noise. **36**: 1047(A), 2363—1964
—— Message probability and message reception. **36**: 937—1964
—— Neutralization of stimulus bias in auditory rating scales. **36**: 1272—1964
—— Ohm's acoustical law and short-term auditory memory. **36**: 2340—1964
Pollock, K. C. "Cortical conditioning" in auditory evaluation. **36**: 1977(A)—1964
Polly, Robert C. Performance characteristics of a 160 000-W acoustic siren. **36**: 2011(A)—1964
Porter, David T. Self- and mutual-radiation impedance and beam patterns for flexural disks in a rigid plane. **36**: 1154—1964
Powell, Alan. On flow fields driving a contiguous acoustic field. **36**: 830—1964
—— On the estimation of the generalized force due to random pressure and on necessary modes. **36**: 783(L)—1964
—— Sound generation by inhomogeneities convected by a steady space-varying flow, or "scattering" by subsonic waves. **36**: 1032(A)—1964
—— Theory of vortex sound. **36**: 177—1964
—— (see Friedlander, Melvin M.). **36**: 1009(A), 1737(L)—1964
—— (see Smith, T. J. B.). **36**: 1018(A)—1964
—— (see White, Prichard H.). **36**: 2004(A)—1964
Powell, John G. Sound isolation for transducer-threshold-noise evaluation. **36**: 1013(A)—1964
Powers, Samuel R., Jr. (see Boomsliter, Paul C.). **36**: 1007(A), 1958(L)—1964
Prasad, C. On vibrations of spherical shells. **36**: 489—1964
Prestigiacomo, A. J. (see Golden, Roger M.). **36**: 1022(A), 1962(L)—1964
Preston, J. L. (see Weingarten, V. I.). **36**: 2013(A)—1964
Prout, James H. Method for analyzing harmonic spectra of wide dynamic range. **36**: 2015(A)—1964
Pruzansky, S. and M. V. Mathews. Talker-recognition procedure based on analysis of variance. **36**: 2041—1964
—— (see Becker, M. H.). **36**: 1988(A)—1964

Putukian, John H. Predicting vibratory response of circuit boards located inside an electronic package due to a reverberant acoustic field by energy methods. **36**: 1051(A)—1964
—— Simulating missile-firing acoustical environment by means of equivalent vibration. **36**: 2004(A)—1964
Pyle, Robert W., Jr. Flexural horns. **36**: 1034(A)—1964
—— Pitch change of the stopped French horn. **36**: 1025(A)—1964

Q

Quate, C. F. (see Haydl, W. H.). **36**: 1670—1964

R

Rabiner, Lawrence R. Binaural masking—the effects of interaural delay of the noise on the detection of tones. **36**: 1992(A)—1964
——, **J. L. Flanagan, and E. E. David, Jr.** Masking-level differences for pulses. **36**: 2008(A)—1964
Rader, Charles M. Study of vocoder filters by computer simulation. **36**: 1023(A)—1964
—— Vector pitch detection. **36**: 1963(L)—1964
—— (see Gold, B.). **36**: 1022(A), 1215(L)—1964
Rader, W. P. Improved broad-band random siren. **36**: 2012(A)—1964
Raelson, Verner J. Solutions for nonlinear plane-wave equations of acoustics by the method of functional interrelationships of dependent variables. **36**: 1031(A)—1964
Ransone, Morris A. (see Northrop, John). **36**: 215(L)—1964
Rasmussen, R. A. (see Liebermann, L. N.). **36**: 843—1964
Rattayya, J. V. and M. C. Junger. Flow excitation of cylindrical shells and associated coincidence effects. **36**: 878—1964
—— (see Thompson, William, Jr.). **36**: 1488—1964
Raulston, C. M., Jr. (see Griffith, E. D.). **36**: 1035(A)—1964
Raynor, S. (see Peralta, L. A.). **36**: 476—1964
Redwood, M. Experiments with the electrical analog of a piezoelectric transducer. **36**: 1872—1964
Reese, Lymon C. Interaction between a spacecraft and soil during impact. **36**: 1995(A)—1964
Remmers, G. M. (see Belsheim, R. O.). **36**: 1021(A), 2003(A)—1964
Repici, D. J. (see Fabian, R. W.). **36**: 1027(A)—1964
Resnikoff, H. L. (see Bhimani, B. V.). **36**: 1988(A)—1964
Riach, W. D., D. N. Elliott, and L. Frazier. Effect of repeated exposure to high-intensity sound. **36**: 1195—1964
—— **and J. Sheposh.** Further observations on the central factor in auditory fatigue. **36**: 967(L)—1964
Ricard, James H. Directivity of a cylindrical source. **36**: 1026(A)—1964
Rich, Stanley R. Eddy current high-frequency reproduced. **36**: 1013(A)—1964
—— Flat, spiral, direct radiator transducer. **36**: 1013(A)—1964
—— Large-area pneumatically driven bass reproducer. **36**: 1014(A)—1964
—— Point-jet compressed-gas transducer. **36**: 1018(A)—1964
Richards, E. J. Sonic boom assessment. **36**: 1036(A)—1964
—— Turbulent boundary-layer pressure fluctuations over two-dimensional and narrow delta wings. **36**: 1045(A)—1964
—— **and J. F. Wilby.** Panel response and its relation to the type of excitation. **36**: 1046(A)—1964
Richardson, P. D. Influence of sound upon local heat transfer from a cylinder. **36**: 2323—1964
Richie, William C. and E. L. Hixson. Atmospheric infrasonic-pressure variations. **36**: 1990(A)—1964
—— (see Collins, Joseph L.). **36**: 1283—1964
Richter, R. M. Measurements of backscattering from the sea surface. **36**: 864—1964
Rilling, Mark E. and Lloyd A. Jeffress. Comparison of time delay and phase shift of a narrow-band noise signal in binaural signal detection. **36**: 1041(A)—1964
—— **and Lloyd A. Jeffress.** Effect of phase difference between signal and masker on dteection of a narrow-band noise signal. **36**: 1991(A)—1964
—— (see Jeffress, Lloyd A.). **36**: 1991(A)—1964
—— (see Watson, Charles S.). **36**: 283, 1991(A)—1964
Ripperger, E. A. Energy dissipation during impact. **36**: 1995(A)—1964
Ritsma, Roelof J. and Frederik L. Engel. Pitch of frequency-modulated signals. **36**: 1637—1964
Rivette, C. Laurence (see Tanner, Wilson P., Jr.). **36**: 1465—1964
Roberts, Richard A. Use of amplitude information in sequential signal detection. **36**: 2015(A)—1964
Robinson, Donald E. and Bruce H. Deatherage. On the limits of binaural interaction. **36**: 1029(A)—1964
Rockwell, T. H. Investigation of structure-borne active vibration dampers. **36**: 2004(A)—1964
—— **and J. M. Lawther.** Theoretical and experimental results on active vibration dampers. **36**: 1507—1964
Rogers, C. B. (see Mabie, H. H.). **36**: 463—1964
Romilly, Nicholas. Transmission of sound through a stretched ideal membrane. **36**: 1104—1964
Rose, Frederick P. Owner's viewpoint in residential acoustical control. **36**: 740—1964
Rosenheck, A. (see Bauer, B. B.). **36**: 1041(A)—1964
Rossi, G., G. Voena, G. Cortesina, and S. Buongiovanni. Changes in the cochlear-microphonic potential due to resection of the efferent cochlear fibers. **36**: 1845—1964
Rothauser, E. H. (see Paulus, E.). **36**: 2002(2A)—1964
Rschevkin, S. N. *A Course of Lectures on the Theory of Sound* reviewed by L. Wallace Dean. **36**: 1753—1964
Rucker, Carl E. Some experimental effects of curvature on response of simple panels to intense noise. **36**: 1046(A)—1964
Rudder, Fred F. (see Plumblee, Harry E.). **36**: 1051(A)—1964
Rudmose, Wayne. Concerning the problem of calibrating TDH-39 earphones at 6 kHz with a 9A coupler. **36**: 1049(A)—1964
Rudnick, Isadore. Review of *Encyclopedia of Physics, Volume XI, Part II, Acoustics II* edited by S. Flügge. **36**: 800—1964
—— Review of *Proceedings of the Eighth International Conference on Low Temperature Physics* edited by R. O. Davies. **36**: 1978—1964
—— (see Finch, R. D.). **36**: 1009(A)—1964
Rupert, Allen, George Moushegian, and Milton A. Whitcomb. Binaural-click analysis by brain-stem auditory neurons. **36**: 1018(A)—1964
—— (see Moushegian, George). **36**: 196, 1017(A), 1996(A)—1964
Russell, L. T. Analog-computer investigation of velocity transformers. **36**: 1999(A)—1964

S

Sabathé, P. (see Guieysse, L.). **36**: 981—1964
Sabin, Gerald A. Calibration of piston transducers at marginal test distances. **36**: 168—1964
Sachs, Murray B. Responses to acoustic stimuli from single units in the eighth nerve of the green frog. **36**: 1956(L)—1964

Saenger, R. Alfred. Physical theory for the reverberation observed in backscattering. 36: 1987(A)—1964
Saldanha, E. L. and John F. Corso. Timbre cues and the identification of musical instruments. 36: 2021—1964
Santaniello, S. R. (see Menotti, F. R.). 36: 1993(A)—1964
Sapozhkov, M. A. *Rechevoy Signal v Kibernetike i Svyazi* (*The Speech Signal in Cybernetics and Communications*) reviewed by M. R. Schroeder. 36: 225—1964
Sayers, B. McA. Acoustic-image lateralization judgments with binaural tones. 36: 923—1964
—— **and F. E. Toole.** Acoustic-image lateralization judgments with binaural transients. 36: 1199—1964
Scanlan, R. H. Noise in rolling-element bearings. 36: 1037(A)—1964
Schenck, Harry A. Flexural vibrations of bilaminar ceramic plates. 36: 2011(A)—1964
Schiffer, Robert A. Correlation of launch-vehicle aerodynamic noise with spacecraft flight-vibration data. 36: 1046(A)—1964
Schloss, Fred and Alan O. Sykes. Intensity meter for underwater use. 36: 2017(A)—1964
Schmid, Charles. Digital-computer phase techniques for determining noise-source location. 36: 2015(A)—1964
Schmitt, Hans J. and Tai Tsun Wu. Electromagnetic reflection from sound waves. II. 36: 437—1964
Schneider, B. A. and H. L. Lane. Note on the variability hypothesis in category scaling. 36: 1958(L)—1964
Schon, Terry D. (see Bergman, Moe). 36: 1029(A)—1964
Schroeder, M. R. An acoustical journey to the Soviet Union. 36: 1403(AN)—1964
—— Digital-computer method of measuring concert-hall acoustics. 36: 1011(A)—1964
—— Improvement of acoustic-feedback stability by frequency shifting. 36: 1718—1964
—— Review of *Rechevoy Signal v Kibernetike i Svyazi* (*The Speech Signal in Cybernetics and Communications*) by M. A. Sapozhkov. 36: 255—1964
—— (see Atal, B. S.). 36: 1011(A)—1964
—— (see Noll, A. M.). 36: 1030(A)—1964
—— (see Sessler, G. M.). 36: 1011(A)—1964
Schubert, Earl D. (see White, Frederick E.). 36: 226, 614, 982, 1407, 1753, 2252—1964
Schulkin, M. and R. Shaffer. Backscattering of sound from the sea surface. 36: 1699—1964
Schulman, Arthur I. and Rhoda R. Mitchell. Detectability of the deletion of a tone from a tone-plus-noise background. 36: 2009(A)—1964
Schultz, M. C. and Marilyn Berman. Speech-discrimination relations in normal and pathological ears. 36: 1050(A)—1964
—— **and L. J. Bogardus.** Phoneme proportion constancy in English. 36: 1988(A)—1964
Schultz, Theodore J. Conversion between old and new octave-band levels. 36: 2415(L)—1964
—— Impact-noise recommendations for the FHA. 36: 729—1964
—— **and B. G. Watters.** Perception of music heard via interfering paths. 36: 897—1964
—— **and B. G. Watters.** Propagation of sound across audience seating. 36: 885—1964
—— (see Beranek, Leo L.). 36: 1247—1964
—— (see Watters, B. G.). 36: 1010(A)—1964
Schumacher, W. R. (see Menotti, F. R.). 36: 1993(A)—1964
Schwartz, M. L., L. G. Kersta, and L. D. Spindel. Heartprints of some arrhythmias and systolic murmurs. 36: 2008(A)—1964
—— (see Kersta, L. G.). 36: 1050(A)—1964
Scott, H. D. (see Chapman, R. P.). 36: 1735(L), 2417(L)—1964
Seelig, J. M. and W. H. Hoppmann, II. Normal mode vibrations of systems of elastically connected parallel bars. 36: 93—1964
Seiden, M. B. (see Coppens, A. B.). 36: 1032(A)—1964
Selters, Weldon. Adaptation and fatigue. 36: 2202—1964
Sen Gupta, Ratneswar and Ranjit Ghosh. Method of perturbation applied to the vibration problems of a circular membrane of varying density. 36: 1118—1964
Senko, A. and R. H. Nichols, Jr. Effect of waveheight on surface-reflected pulse amplitudes. 36: 1987(A)—1964
Sessler, G. M. Propagation of acoustic ion waves in a weakly ionized gas. 36: 1999(A)—1964
—— Review of *Die wissenschaftlichen Grundlagen der Raumakustik—Band II: Statistische Raumakustik* by Lothar Cremer. 36: 1751—1964
——, **B. S. Atal, M. R. Schroeder, and J. E. West.** Acoustical measurements in Philharmonic Hall (New York). 36: 1011(A)—1964
—— **and J. E. West.** Sound transmission over theatre seats. 36: 1725—1964
Sferrino, Vincent (see Tierney, Joseph). 36: 1901—1964
Shaffer, Harry L. Information rate necessary to transmit pitch-period durations for connected speech. 36: 1895—1964
Shaffer, John (see Guthrie, Albert N.). 36: 2293—1964
Shaffer, R. (see Schulkin, M.). 36: 1699—1964
Shah, B. P. and Paul H. E. Meijer. Numerical evaluation of the ultrasonic attenuation in metals as a function of the magnetic field. 36: 327—1964
Shaner, Edward O. Augmentation of bactericidal action of germicides with ultrasound. 36: 2238(L)—1964
Shapiro, Arthur. Power spectrum of array signal-gain fluctuations. 36: 1998(A)—1964
Sharma, Darbari L. Transient response of a layered medium with tilted interfaces. 36: 1990(A)—1964
Sharman, R. V. *Vibrations and Waves* reviewed by Carl E. Adams. 36: 1233—1964
Shear, Marcia (see Hirsch, Peter). 36: 1015(A)—1964
Sheeley, Eugene C. and Robert C. Bilger. Temporal integration as a function of frequency. 36: 1850—1964
Shepard, Roger N. Circularity in judgments of relative pitch. 36: 2346—1964
Sheposh, J. (see Elliott, D. N.). 36: 752—1964
—— (see Riach, W. D.). 36: 967(L)—1964
Sheppard, W. C. (see Cross, D. V.). 36: 1047(A)—1964
Sherman, Charles H. (see Greenspon, Joshua E.). 36: 149—1964
—— (see Williams, W.). 36: 2316—1964
Shields, F. Douglas (see Lewis, James W. L.). 36: 1593(L)—1964
Shiner, Allen H. Effect of humidity on sound-transmission loss. 36: 2013(A)—1964
Shively, J. H. (see Hunter, J. L.). 36: 953—1964
Siegel, David S. (see Koidan, Walter). 36: 2233(L)—1964
Siegenthaler, Bruce M. and Richard Strand. Audiogram-average methods and SRT scores. 36: 589—1964
Silbiger, H. R. Frequency modulation of speech. 36: 2001(A)1964
Simon, Murray. Measurement of high-Q resonances in liquid-filled spheres. 36: 2000(A)—1964
Sims, Claude C. and T. A. Henriquez. Reciprocity calibration of a standard hydrophone at 16 000 psi. 36: 1704—1964
Sinha, D. K. Radial deformation of a composite piezoelectric annular disk. 36: 1926—1964
Sirota, D. (see Anderson, G.). 36: 140—1964
Skolnik, M. I. and C. S. Clay. Symposium on signal processing in radar and sonar directional systems. 36: 1975(AN)—1964
Skudrzyk, E. J. Vibrations excited by statistically fluctuating forces. 36: 2003(A)—1964

Slavík, Josef Bartoloměj, 1900–1964. **36**: 1749—1964
Slawson, A. Wayne (see Stevens, S. S.). **36**: 1028(A)—1964
Slie, Warren M. and Theodore A. Litovitz. Temperature and pressure dependence of the free volume of liquid glycerol. **36**: 1040(A)—1964
Small, Arnold M., Jr., and Julius A. Canahl, Jr. Masking of the pitch related to the time delay between two pulse trains. **36**: 1028(A)—1964
—— (see Campbell, Richard A.). **36**: 210(L)—1964
—— (see Daniloff, R. G.). **36**: 1733(L)—1964
Smith, P. F., A. G. Pikler, and J. D. Harris. Stimulus parameters contributing to TTS for tone bursts at 2.2 kc/sec. **36**: 1050(A)—1964
Smith, P. W., Jr. Coupling of sound and panel vibration below the critical frequency. **36**: 1516, 1023(A)—1964
—— Damping due to mode coupling: a wave analysis. **36**: 1052(A)—1964
—— Restrictions in Pachner's analyses for determination of the farfield directivity function from nearfield measurements. **36**: 1966(L)—1964
Smith, R. P. (see Loeb, M.). **36**: 2007(A)—1964
Smith, T. J. B. and Alan Powell. On the mechanism of the Hartmann whistle. **36**: 1018(A)—1964
—— (see Friedlander, Melvin M.). **36**: 1009(A), 1737(L)—1964
Smollen, Leonard E. Generalized matrix method for the design and analyses of vibration isolation systems. **36**: 1020(A)—1964
Snow, William B. Articulation-test control circuits. **36**: 1047(A), 2048—1964
Snowdon, J. C. Approximate expressions for the mechanical impedance and transmissibility of beams vibrating in their transverse modes. **36**: 366—1964
—— Longitudinal vibration of internally damped rods. **36**: 502—1964
—— Response of a simply clamped beam to vibratory forces and moments. **36**: 495—1964
—— Steady-state behavior of the dynamic absorber—addendum. **36**: 1121—1964
—— Wave effects in rubber antivibration mountings. **36**: 2003(A)—1964
Soloff, Robert S. Sonic drying. **36**: 961—1964
Sommer, H. C. (see von Gierke, Henning E.). **36**: 1997(A)—1964
Sondhi, Man Mohan. Equivalence of "vector" and autocorrelation pitch detectors. **36**: 1964(L)—1964
Sonesson, Bertil (see Fant, Gunnar). **36**: 2002(A)—1964
Sorkin, Robert D. Uncertain signal detection with contralateral cues. **36**: 1992(A)—1964
Soroka, Walter W. (see Wilson, George P.). **36**: 1023(A)—1964
Soron, Henry I. On the relationship between prosodic features and the lexical content of speech. **36**: 1048(A)—1964
—— (see Lieberman, Philip). **36**: 1048(A)—1964
Sperry, William C. Rheological-model concept. **36**: 376—1964
Spindel, L. D. (see Schwartz, M. L.). **36**: 2008(A)—1964
Spitznogle, F. R. and E. G. McLeroy. Computed pressure–time waveforms for an impulsive source near a fluid/two-layer-solid interface. **36**: 972(L)—1964
Stanbrough, J. H. Oceanographic and acoustic scientists of the USSR visit Boston, Massachusetts. **36**: 1606(AN)—1964
Stangerup, Paul (see Lallement, Bruno). **36**: 1993(A)—1964
Stauffer, Donald W. Temperament habits and preferences of professional musicians. **36**: 1025(A)—1964
Steinberg, Bruce (see Harbold, Mary L.). **36**: 1010(A)—1964
Stern, Hervey W. (see Bell, Donald W.). **36**: 1162—1964
Stern, Richard. Ultrasonic attenuation in sodium at low temperatures (abstract of dissertation). **36**: 1971(AN)—1964
Stevens, Joseph C. and Miguelina Guirao. Individual loudness functions. **36**: 2210—1964
Stevens, Kenneth N., S. E. G. Öhman, M. Studdert-Kennedy, and A. M. Liberman. Crosslinguistic study of vowel discrimination. **36**: 1989(A)—1964
—— (see Heinz, John M.). **36**: 1037(A)—1964
—— (see House, Arthur S.). **36**: 1038(A)—1964
—— (see Paul, Allan P.). **36**: 303– 1964
—— (see Studdert-Kennedy, M.). **36**: 1989(A)—1964
Stevens, S. S., Miguelina Guirao, and A. Wayne Slawson. Loudness is a product of density times volume. **36**: 1028(A)—1964
—— (see Guirao, Miguelina). **36**: 1176—1964
Stewart, Ellen S. (see Stewart, James L.). **36**: 1040(A)—1964
Stewart, James L. and Ellen S. Stewart. Design of a 3-Gc/sec hypersonic interferometer for liquids. **36**: 1040(A)—1964
Stewart, L. C. (see Houde, R. A.). **36**: 2001(A)—1964
Stockhausen, J. H. Energy per unit-area spectrum of the shock wave from 1-lb TNT charges exploded underwater. **36**: 1220(L)—1964
Stowe, Arthur N. Syllable segmentation in voiced environments. **36**: 1048(A)—1964
Strand, Richard (see Siegenthaler, Bruce M.). **36**: 589—1964
Strong, William J. Spectrum-envelope method for synthesis of clarinet tones. **36**: 2014(A)—1964
Studdert-Kennedy, M., A. M. Liberman, and Kenneth N. Stevens. Reaction time during the discrimination of synthetic stop consonants. **36**: 1989(A)—1964
—— (see Stevens, Kenneth N.). **36**: 1989(A)—1964
Stumpf, F. B. Interaction radiation resistance for a line array of two and three magnetostrictive-stack transducers at an air–water surface. **36**: 174—1964
Subrahmanyam, S. V. and J. E. Piercy. Ultrasonic relaxation in the study of the rotational isomers of isopropyl formate. **36**: 1040(A)—1964
Suckling, E. E. and J. A. Suckling. Lateral line as a vibration receptor. **36**: 2214—1964
Suckling, J. A. (see Suckling, E. E.). **36**: 2214—1964
Summers, Agnes C. (see Collier, Robert D.). **36**: 2080—1964
Sutton, George H. First results from a long-period, ocean-bottom seismograph system. **36**: 2008(T)—1964
Swets, John A., editor and arranger. *Signal Detection and Recognition by Human Observers* reviewed by R. S. Gales. **36**: 2428—1964
Swigart, Elca. Pitch of periodically interrupted tones. **36**: 1027(A)—1964
Sykes, Alan O. (see Schloss, Fred). **36**: 2017(A)—1964

T

Talham, Robert J. Ambient-sea-noise model. **36**: 1541—1964
Tanner, Wilson J., Jr., and C. Laurence Rivette. Experimental study of "tone deafness." **36**: 1465—1964
Tasi, J. Thermoelastic dissipation in thickness-shear and flexural vibrations of AT-cut quartz plates. **36**: 1929—1964
—— **and G. Herrmann.** Thermoelastic dissipation in high-frequency vibrations of crystal plates. **36**: 100—1964
Tavolga, William N., editor. *Marine Bio-Acoustics* reviewed by William J. Fry. **36**: 2251—1964

Taylor, M. M. Comments on "Sensory thresholds and response bias." **36**: 599(L)—1964
Teacher, C. F. and C. Mutschler. Application of delta modulation to the channel vocoder. **36**: 1031(A)—1964
Teas, Donald C. Two-signal paradigm: whole-nerve action-potential responses. **36**: 1996(A)—1964
Tedrick, Richard N. Acoustical measurements of static tests of clustered and single-nozzled rocket engines. **36**: 1036(A), 2027—1964
—— Propagation of low-frequency sound near the earth's surface. **36**: 1991(A)—1964
Tempest, W. (see Harris, Cyril M.). **36**: 2390, 2416(L)—1964
Tersteeg, G. E. (see DeSilva, C. N.). **36**: 666—1964
Tetreault, D. E. and R. F. Hill. Statistical study of the wind-driven surface of an underwater acoustic model tank. **36**: 1044(A)—1964
Theissen, George J. Biennial Award 1964, Tony Frederick Wallace Embleton. **36**: 974(AN)—1964
—— Low-frequency attenuation of rigid-frame ear defenders. **36**: 2006(A)—1964
Thompson, Rory J. (see Linnette, Harry M.). **36**: 1788—1964
Thompson, William, Jr., and J. V. Rattayya. Acoustic power radiated by an infinite plate excited by a concentrated moment. **36**: 1488—1964
Thurlow, W. R. Role of time cues in pitch. **36**: 968(L)—1964
Thurston, R. N. Effective elastic coefficients for wave propagation in strained elastic crystals. **36**: 1041(A)—1964
—— (see Brugger, K.). **36**: 1041(A)—1964
Tibbetts, Raymond W., 1889–1964. **36**: 1739—1964
Tierney, Joseph. Some work on channel-vocoder excitation. **36**: 1022(A)—1964
——, **Bernard Gold, Vincent Sferrino, J. A. Dumanian, and Everett Aho.** Channel vocoder with digital pitch extractor. **36**: 1901—1964
Tillman, Tom W., Peter J. Dallos, and Thomas Kuruvilla. Reliability of measures obtained with the Zwislocki acoustic bridge. **36**: 582—1964
—— **and Keith D. Gish.** Comments on the effect of circumaural earphones on auditory threshold **36**: 969(L)—1964
Toffler, Jerome E. and Fred B. Wade. Pitch extractor, using clippers. **36**: 1030(A)—1964
Tomlinson, Raymond S. (see Dennis, Jack B.). **36**: 1038(A)—1964
Tonndorf, Juergen, Elliot C. Greenfield, and Roger S. Kaufman. Occlusion effect of the external-ear canal and its effect upon bone conduction. **36**: 1049(A)—1964
Toole, F. E. (see Sayers, B. McA.). **36**: 1199—1964
Torick, E. (see Bauer, B. B.). **36**: 1993(A)—1964
Toulis, W. J. Acoustic pressure-release techniques for transducers. **36**: 1027(A)—1964
Trill, D. (see Carr, P. B.). **36**: 2033—1964
Trott, W. James. Underwater-sound-transducer calibration from nearfield data. **36**: 1557—1964
Truby, H. M. Differing pharynx shapes and sizes for vowels. **36**: 2002(A)—1964
Tsakonas, S., C. Y. Chen, and W. R. Jacobs. Acoustic radiation of a cylindrical bar excited by the field of a ship propeller. **36**: 1569—1964
——, **C. Y. Chen, and W. R. Jacobs.** Acoustic radiation of an infinite plate excited by the field of a ship propeller. **36**: 1708—1964
Tschiegg, Carl E. (see Greenspan, Martin). **36**: 450—1964
Tsuchitani, Chiyeko (see Boudreau, James C.). **36**: 1017(A)—1964
Tsui, T. and H. Kraus. Thermal stress-wave propagation in hollow elastic spheres. **36**: 1999(A)—1964
Tucker, Ann (see Hafter, Ervin R.). **36**: 1991(A)—1964
Turner, W. R. Mach-Zehnder type of ultrasonic interferometer. **36**: 1040(A)—1964
—— Model for the persistent microbubble. **36**: 1009(A)—1964
—— Ultrasonic image converter of high-conductance scanning type. **36**: 2016(A)—1964
Twersky, Victor. Acoustic bulk parameters of random volume distributions of small scatterers. **36**: 1314—1964
Tyson, Loring E. (see Northrup, John). **36**: 215(L)—1964

U

Uginčius, Peter (see Lugt, Hans J.). **36**: 689—1964
Ungar, Eric E. and Edward M. Kerwin, Jr. Plate damping due to thickness deformations in attached viscoelastic layers. **36**: 386—1964
Urick, R. J. Attenuation over RSR paths in the deep sea. **36**: 786(L)—1964
—— **and G. R. Lund.** Vertical coherence of explosive reverberation. **36**: 2164—1964
—— (see Lund, G. R.). **36**: 1015(A)—1964
Usher, Theron, Jr. Random-bearing errors in split-beam systems. **36**: 2006(A)—1964
—— Signal detection by arrays in noise fields with local variations. **36**: 1444—1964

V

van Bergeijk, Willem A. Evolution of binaural hearing. **36**: 1008(A)—1964
—— Evolution of vertebrate hearing. **36**: 1008(A)—1964
—— Sonic-pulse compression in bats and people: a comment. **36**: 594—1964
—— (see Guttman, Newman). **36**: 1029(A)—1964
Van Bladel, J. Excitation of a resonant cavity by ducts of small cross-sectional dimensions. **36**: 1090—1964
—— (see Bjerke, C.). **36**: 1095—1964
van den Brink, G. Detection of tone pulse of various durations in noise of various bandwidths. **36**: 1206—1964
—— Experiment on cochlear summation. **36**: 1213(L)—1964
Van Houten, John J. *In situ* calibration of microphones. **36**: 1014(A)—1964
—— **and Walter T. Fiala.** Characteristics of noise generated by an electro-pneumatic transducer. **36**: 1036(A)—1964
Veneklasen, Paul S. Acoustical behavior of segmented ceilings. **36**: 1010(A)—1964
—— In the interest of architectural acoustics. **36**: 393(L)—1964
—— **and Jerry P. Christoff.** Seattle Opera House—acoustical design. **36**: 903—1964
Vet, Maarten. Normal vibration modes of continuous beams with distinct flexural rigidities for each span. **36**: 1934—1964
Vezza, Albert. Mathematical analysis of glottal waveforms. **36**: 1048(A)—1964
Vigran, Erik, Kjell Gjaevenes, and Gunnar Arnesen. Two experiments concerning rise time and loudness. **36**: 1468—1964
Voena, G. (see Rossi, G.). **36**: 1845—1964
Voiers, William D. Perceptual bases of speaker identity. **36**: 1065—1964
von Gierke, Henning E. Mechanical-impedance measurements on the human body and their use in biodynamics. **36**: 1021(A)—1964
—— **and H. C. Sommer.** Hearing and feeling sensations in electric fields. **36**: 1997(A)—1964
—— (see Clarke, Neville P.). **36**: 1021(A)—1964

W

Wade, Fred B. Computer evaluation of pitch extractors. **36**: 2001(A)—1964

—— (see Toffler, Jerome E.). **36**: 1030(A)—1964

Wagner, W. J. (see Carome, E. F.). **36**: 2368—1964

Wainwright, W. L. On torsional oscillations in a finite circular cylinder. **36**: 511—1964

Waldron, R. A. *Waves and Oscillations* reviewed by Malcolm C. Henderson. **36**: 1752—1964

Walton, W. C., Jr., B. J. Durling, and H. W. Leonard. Application of digital-computer techniques to the study of the impact dynamics of lunar-landing vehicles. **36**: 1995(A)—1964

Wang, Paul. Comments on "Preliminary investigation of the equivalence of acoustically and mechanically induced vibrations," by L. Marin and R. C. Kroeger. **36**: 213(L)—1964

Ward, W. Dixon. Comparison of susceptibility tests. **36**: 1050(A)—1964

—— Temporary threshold shift in males and females. **36**: 2007(A)—1964

Warren, Richard M. and Roslyn P. Warren. Perceptual reorganization of repeated speech sounds. **36**: 1047(A)—1964

Warren, Roslyn P. (see Warren, Richard M.). **36**: 1047(A)—1964

Waterhouse, Richard V. Reply to Dr. Maling's "Comments on 'Radiation impedance of a source near reflectors' by R. V. Waterhouse." **36**: 783(L)—1964

—— **and Richard K. Cook.** Interference patterns in reverberant sound fields, II. **36**: 2000(A)—1964

Wathen-Dunn, Weiant, Sheldon B. Michaels, and Philip Lieberman. Pitch of speech from a talker supplied with various amounts of helium. **36**: 2002(A)—1964

Watkins, Charles E. (see Lansing, Donald L.). **36**: 2222—1964

Watson, B. J. (see Flanagan, J. L.). **36**: 2184—1964

Watson, Charles S. Measurement of individual stimuli in a signal-detection task. **36**: 1042(A)—1964

—— **and Ben M. Clopton.** Auditory sensitization and the method of interpolated trials. **36**: 2009(A)—1964

——, **Mark E. Rilling, and Walter T. Bourbon.** Receiver-operating characteristics by rating scale for antiphasic stimulation. **36**: 1991(A)—1964

——, **Mark E. Rilling, and Walter T. Bourbon.** Receiver-operating characteristics determined by a mechanical analog to the rating scale. **36**: 283—1964

—— (see Jeffress, Lloyd A.). **36**: 1991(A)—1964

Watters, B. G., T. J. Schultz, and D. L. Klepper. Ratio of "early" to "delayed" sound energy in halls. **36**: 1010(A)—1964

—— (see Beranek, Leo L.). **36**: 1247—1964

—— (see Klepper, David L.). **36**: 1011(A)—1964

—— (see Schultz, Theodore J.). **36**: 885, 897—1964

Wayne, W. C., Jr. Review of *Dictionary of Pipe Organ Stops* by Stevens Irwin. **36**: 2429—1964

Webster, J. C. Relations between speech-interference contours and idealized articulation-index contours. **36**: 1662—1964

—— Speech communications as limited by ambient noise. **36**: 1988(A)—1964

Weigle, F. G. (see Arase, T.). **36**: 1015(A)—1964

Weingarten, V. I., M. J. Jacobson, and J. L. Preston. Response of a loaded sandwich panel with mass attachments. **36**: 2013(A)—1964

Weiss, Mark R. (see Harris, Cyril M.). **36**: 933—1964

West, G. W. (see Miller, Norman D.). **36**: 1045(A)—1964

West, Herbert L. (see Devine, John A.). **36**: 2005(A)—1964

West, J. E. (see Sessler, G. M.). **36**: 1011(A), 1725—1964

Westerfield, E. C. (see Allen, W. B.). **36**: 121—1964

Weston, Peter B. and James D. Miller. Use of noise to eliminate one ear from masking experiments. **36**: 2009(A)—1964

—— (see Miller, James D.). **36**: 1591(L); erratum 2234—1964

Whitcomb, Milton A. (see Moushegian, George). **36**: 196, 1017(A), 1996(A)—1964

—— (see Rupert, Allen L.). **36**: 1018(A)—1964

White, Frederick E. and Earl D. Schubert. References to contemporary papers on acoustics. **36**: 226, 614, 982, 1407, 1753, 2252—1964

White, J. E. Reflections from lossy media. **36**: 1990(A)—1964

White, Pritchard H. Effect of boundary flexibility on the response of a string to convected random loading. **36**: 707—1964

—— Method of estimating the mean-square response of a linear system with random parameters to random excitation. **36**: 1216(L)—1964

—— Some useful approximations for determining the vibration of structures excited by random pressures. **36**: 784(L)—1964

—— **and Alan Powell.** Sound and vibration transmission through a rectangular double wall by statistical methods: theory and experiment. **36**: 2004(A)—1964

Whiteley, J. W. (see Barnard, G. R.). **36**: 2011(A)—1964

Whitman, Edward C. (see Dennis, Jack B.). **36**: 1038(A)—1964

Whitney, J. A. (see Bucker, H. P.). **36**: 1595(L)—1964

Wiener, Francis M., Charles I. Malme, and Creighton M. Gogos. Investigation of sound propagation in urban areas. **36**: 1035(A)—1964

Wilby, J. F. (see Richards, E. J.). **36**: 1046(A)—1964

Wilhem, D. P. Importance of superimposed acoustic, static, and dynamic loadings and their application to aerospace structural testing. **36**: 1046(A)—1964

Wilk, M. B. (see Becker, M. H.). **36**: 1988(A)—1964

Williams, A. O., Jr. Acoustic field of a circular plane piston. **36**: 2408—1964

——, **and William Horne.** Axial focusing in SOFAR channel. **36**: 1997(A)—1964

——, **and F. Ingenito.** Harmonic distortion of initially sinusoidal plane wave. **36**: 1032(A)—1964

Williams, J. E. Ffowcs. Development of a Mach wave radiated by a point quadrupole. **36**: 1045(A)—1964

—— **and Gideon Maidanik.** Mach wave radiation from a highly sheared supersonic turbulent flow. **36**: 1045(A)—1964

Williams, W., N. G. Parke, D. A. Moran, and Charles H. Sherman. Acoustic radiation from a finite cylinder. **36**: 2316—1964

Wilson, George P. Measurement of the transmission loss of finite depth of circular apertures. **36**: 1023(A)—1964

—— **and Walter W. Soroka.** Approximation to the diffraction of sound by a circular aperture in a rigid wall of finite thickness. **36**: 1023(A)—1964

Wilson, Wayne. Temperature coefficients of sound velocity in ethyl alcohol. **36**: 398(L)—1964

—— **and David Bradley.** Speed of sound in four primary alcohols as a function of temperature and pressure. **36**: 333—1964

Wolff, Walter M. (see Clarke, Neville P.). **36**: 1021(A)—1964

Wolak, David. Discrimination limen for loudness under varying rates of intensity change. **36**: 1277—1964

Wood, Albert Beaumont, 1890–1964. W. L. Borrows. **36**: 2248—1964
Wood, David E. New display format and a flexible-time integrator for spectral-analysis instrumentation. **36**: 639—1964
Wood, George W. (see Hunt, F. V.). **36**: 1228(AN)—1964
Wood, Susan (see Jerger, James). **36**: 2007(A)—1964
Woodall, S. R. (see Nowinski, J. L.). **36**: 2113—1964
Woodburn, James. Velocity of sound measurements in high-pressure steam. **36**: 1918—1964
Wren, R. (see Griffith, G.). **36**: 1995(A)—1964
Wright, H. N. Backward masking for tones in narrow-band noise. **36**: 1028(A), 2217—1964
—— Temporal summation and backward masking. **36**: 927—1964
Wright, Wayne M. Experimental study of acoustical *N* waves. **36**: 1032(A)—1964
Wu, Tai Tsun (see Schmitt, Hans J.). **36**: 437—1964

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Yao, John C. Response of anisotropic cylindrical shells due to local acoustic pressure. **36**: 2013(A)—1964
Yeh, Gordon C. K. Diffraction of a plane compressional wave by a spherical cavity in an elastic medium. **36**: 1009(A)—1964
—— Forced vibration of a two-degree-of-freedom system with combined Coulomb and viscous damping. **36**: 1020(A)—1964
Young, Robert W. Acoustics and music. **36**: 2017(T)—1964
—— Review of acoustical patents. **36**: 240, 404, 631, 802, 998, 1236, 1419, 1609, 1781, 1980, 2275, 2431—1964
—— Single-number criteria for room noise. **36**: 289—1964
—— The decibel, measure of transducer performance. **36**: 1019(T)—1964
—— **and R. S. Gales.** Impact sound under concrete-floating-on-wood-joist floor. **36**: 1212(L)—1964
Yu, Yi-Yuan. Generalized Hamilton's principle and variational equation of motion in nonlinear elasticity theory, with application to plate theory. **36**: 111—1964

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Zadell, H. J. (see Martin, T. B.). **36**: 2001(A)—1964
Zeitlin, Lawrence R. Frequency discrimination of pure and complex tones. **36**: 1027(A)—1964
Zerlin, Stanley and G. Donald Causey. Determination of traveling-wave velocity in the human cochlea. **36**: 1992(A)—1964
Zwicker, Eberhard. "Negative afterimage" in hearing. **36**: 2413(L)—1964
—— (see Gleiss, Norman). **36**: 393(L)—1964
Zwislocki, J. (see Hellman, Rhona P.). **36**: 1618—1964

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Following the inventor's name is the number of the United States patent.

A

Aaron, Phillip L. 3,130,627. Musical teaching device. **36**: 1982—1964

Abbott, Frank R. 3,100,291. Underwater loudspeaker. **36**: 408—1964

—— 3,126,520. Transducer. **36**: 1786—1964

Alexander, Warren A. 3,065,456. Self-orienting vibration detector. **36**: 636—1964

Alleman, Ray S., Jack D. Baker, William A. Daniel, and Ralph C. Struthers. 3,108,211. Activation of ferroelectric elements. **36**: 805—1964

Alles, Edwin J. 3,099,183. Mute and reflector for musical wind instruments. **36**: 1242—1964

Amfahr, Warren U. 2,969,486. Voice operated control system. **36**: 2441—1964

Andersen, Clifford W. 3,076,371. Keyfork arrangement. **36**: 2436—1964

Anderson, Charles E. and Nikolai Lasarev. 3,117,118. Rotating head switcher. **36**: 1242—1964

Anderson, Edward P. 3,099,813. Electrolytic-ignition underwater sound source. **36**: 407—1964

Anderson, Marvin E. 3,084,583. Tone generation system. **36**: 2438—1964

Anderson, Walter J. 3,068,735. Electrical musical instrument coupling system. **36**: 2281—1964

Andrews, Dallas R. 3,093,334. Magnetic recording and reproducing apparatus. **36**: 246—1964

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Araki, Ryozo (see Hayasaka, Toshio). **36**: 633—1964

Arsem, Alvan Donald, Fred H. Osborne, Ira M. Laurien, and Christian L. Flateau. 3,069,958. Vibrato apparatus. **36**: 2281—1964

Auer, John H., Jr. 3,045,909. Pulsed ultrasonic detector. **36**: 1001—1964

——, **Norman A. Bolton, Hugh C. Kendall, and Robert A. Hagen.** 3,046,544. Mounting means for electro-ultrasonic transducers. **36**: 1002—1964

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Backers, Franciscus Theodorus and Johannes Hendrik Wessels. 3,053,942. Method of recording and/or reproducing high-frequency signals. **36**: 245—1964

—— **and Johannes H. Wessels.** 3,079,469. Magnetic recording. **36**: 246—1964

Bacon, Glenn C. 2,982,822. Automatic gain control circuit utilizing variable capacitance. **36**: 1239—1964

Baker, Jack D. (see Alleman, Ray S.). **36**: 805—1964

Balamuth, Lewis, Arthur Kuris, and Claus Kleesattel. 3,053,124. Ultrasonic welding. **36**: 2283—1964

—— (see Kleesattel, Claus). **36**: 2277—1964

—— (see Kuris, Arthur). **36**: 1983—1964

Barlow, Donald A. 3,111,187. Diaphragm for electro acoustic transducer. **36**: 1000—1964

Barr, Arthur. 3,122,959. Musical straw means. **36**: 1611—1964

Barry, Leonard Dodge. 3,072,750. Flux diverter. **36**: 1422—1964

—— 3,099,709. Tape recorder. **36**: 1423—1964

Baruch, Jordan J. and Bill G. Watters. 3,059,287. Apparatus for and method of soundproof closure sealing. **36**: 240—1964

Bateman, William S., Jr. 3,080,013. Speaker enclosure. **36**: 241—1964

Bauer, Benjamin B. 3,088,997. Stereophonic to binaural conversion apparatus. **36**: 405—1964

Bauer, Howard G. (see Riggs, John H.). **36**: 2437—1964

Bayer, Willi. 3,120,144. String and process for its manufacture. **36**: 1419—1964

Beattie, Malcolm B. 2,939,711. Vehicle actuated controller for sound reproducer. **36**: 1239—1964

Beaudry, John R. 3,124,663. Hearing aid noise suppressor. **36**: 2276—1964

Beaverson, Wayne A. and Robert C. Ramsey. 3,095,484. Unidirectional microphone. **36**: 243—1964

Beguin, Fred P. 3,114,802. Mouthpiece microphone unit. **36**: 1609—1964

Behymer, Donald J. and Clayton D. Mullin. 3,116,376. Acoustical device. **36**: 998—1964

Bekey, Ivan. 3,009,991. Sound reproduction system. **36**: 2432—1964

Belar, Herbert (see Olson, Harry F.). **36**: 2438—1964

Bennett, Owen G. (see Hopkins, James C.). **36**: 248—1964

Berggren, John L. 3,105,692. Record table drives for sound reproduction machines. **36**: 1003—1964

Berkshire, Robert H. 3,042,755. System for magnetic recording. **36**: 1420—1964

Bernstein, Malcolm E. 3,093,914. Metro-audiometer. **36**: 406—1964

Berwin, Kurt. 3,104,581. Electrified accordion. **36**: 634—1964

Bielecki, Mac and Bernard M. Wilner. 3,137,835. Underwater sound generator. **36**: 2441—1964

Bierens, Adrianus (see Kleis, Derk). **36**: 242—1964

Bincer, Hans. 3,100,987. Method of and apparatus for ultrasonically testing butt welds. **36**: 1244—1964

Bixby, Guy T. 3,091,771. Ear cup assembly for helmets. **36**: 404—1964

Bochan, John. 2,987,190. Vibration isolating system. **36**: 406—1964

Bode, Harald E. W. 3,069,956. Electronic apparatus. **36**: 2281—1964

Bodine, Albert G., Jr. 3,123,043. Method and apparatus for transmitting sonic vibrations into liquid bodies. **36**: 1610—1964

Bolton, Norman A. 3,102,252. Ultrasonic vehicle detector. **36**: 1244—1964

—— (see Auer, John H., Jr.). **36**: 1002—1964

Bonham, Don L. 3,083,606. Electrical music system. **36**: 2438—1964

Börner, Manfred. 3,086,182. Mechanical frequency filters. **36**: 1237—1964

Bos, Jules (see Duinker, Simon). **36**: 1424—1964

Bouyoucos, John V. 3,105,460. Hydroacoustic oscillator-amplifier. **36**: 809—1964

Boyer, Charles J. (see Gongall, Vernon F.). **36**: 1781—1964

Bozak, Rudolf T. 3,093,207. Metallic diaphragm for electrodynamic loudspeakers. **36**: 242—1964
Bradley, Wilson, Jr. 3,060,333. High capacity accelerometer. **36**: 635—1964
Brede, Dwight W. 3,045,072. Recording and/or reproducing apparatus and head carriage therefor. **36**: 1421—1964
Bremer, Norman C. 3,049,583. Magnetic recording means. **36**: 1421—1964
Bridges, Elmer H. 3,091,152. Visual instructing device. **36**: 2435—1964
Bried, Julien A. 3,136,197. Violin support. **36**: 2436—1964
Broder, Alan and Henry H. Wakeland. 3,070,995. Vibration analyzing system. **36**: 634—1964
Brosch, Walter R. (see Larrick, Howard M.). **36**: 1002—1964
Brown, Charles S. 3,104,730. Speaker enclosure. **36**: 243—1964
Brown, Ronald Ernest Charles. 2,953,779. Electromagnetic sounders or ringers for giving audible calling signals. **36**: 1784—1964
Brown, Thomas G., Alexander B. C. Rankin, and Roy W. G. Haslett. 3,041,872. Apparatus for ultrasonic testing of materials. **36**: 1005—1964
Buckwalter, James K. 3,121,220. Sleep-inducing sound-producing device. **36**: 1419—1964
Burgess, Warren C., Jr. 2,985,280. Vibratory conveyor structure. **36**: 406—1964
Burkhard, Mahlon D. and Hale J. Sabine. 3,069,955. Piano string and frame assembly. **36**: 2436—1964
Burley, Charles W. 3,126,519. Electrical transducer. **36**: 1981—1964
Burns, Robert V. 3,109,893. Proximity operated loudspeaking telephone. **36**: 1004—1964
Buslik, Walter S. 3,042,756. Rotatable magnetic transducer. **36**: 1420—1964

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Cailliot, Serge Léon Louis. 3,095,200. Support for the recording of sounds and images and apparatus for use thereof. **36**: 1980—1964
Caldwell, Stephen A. 3,098,307. Language instruction apparatus. **36**: 634—1964
Camerino, Ernest. 3,129,627. Voice developing device. **36**: 1982—1964
Campbell, Willis S. (see Marks, Wilbur). **36**: 808—1964
Camras, Marvin. 3,079,470. Magnetic transducer head. **36**: 1240—1964
Capalozza, Leonello. 2,963,693. Device for detecting and repeating selectively sound signals emitted by overtaking vehicles. **36**: 1781—1964
Capra, Robert P. 3,066,674. Speech faciltating attachment for throat tube. **36**: 807—1964
Carlson, Elmer V. 3,111,563. Electro-mechanical transducer. **36**: 1001—1964
Carrell, Ross M., Willard F. Meeker, and Martin L. Tonger. 3,117,575. Ear protector. **36**: 1419—1964
Carter, David C. and Edward M. Jenkins. 3,073,412. Acoustical panel. **36**: 631—1964
Carter, Thomas F. 3,100,818. Communication systems. **36**: 1784—1964
Caspers, James W. 3,079,599. Aural detection system. **36**: 1236—1964
Cefaly, Ralph. 3,109,508. Acoustic stethoscope. **36**: 805—1964
—— 3,124,211. Multiple headed acoustic stethoscope. **36**: 2276—1964
Charlesworth, John G. 3,136,196. Violins and like instruments. **36**: 2436—1964
Chow, Weichien and William H. Fisher. 3,090,349. Horn construction. **36**: 998—1964
Church, Melvin E. and Daniel D. Lomaz. 3,107,438. Sound simulation system. **36**: 2282—1964
Clapper, Genung L. 3,102,165. Speech synthesis system. **36**: 1425—1964
Clark, Chester A. 3,100,022. Hydraulic underwater sound transducer. **36**: 408—1964
Clark, Harold V. and John F. Varnell, Jr. 3,097,267. Tape recording and/or reproducing system and method. **36**: 247—1964
Clark, Melville, Jr. 3,090,272. Dynamically keyed musical instrument. **36**: 2439—1964
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Cleary, Joseph F. (see Tannenbaum, Wesley). **36**: 1421—1964
Cohen, Michael. 3,102,172. Hearing aid. **36**: 404—1964
Comerci, Frank A., Michel Copel, and Eliseo V. Oliveros. 3,093,711. Testing microphones. **36**: 243—1964
Cooley, John A. 3,068,956. Acoustico-illuminative tile. **36**: 240—1964
Coop, Jesse J. 3,098,993. Sonobuoy-bathythermograph system. **36**: 407—1964
—— 3,116,471. Radio sonobuoy system. **36**: 1244—1964
Cooper, Jack B. 3,101,634. Sonic welder. **36**: 1244—1964
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Corwin, Merton D. (see Quitter, John P.). **36**: 2436—1964
Cowan, John V. 3,130,577. Ultrasonic inspection apparatus. **36**: 1984—1964
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Crawford, Ralph W. and Leslie W. Sly. 3,114,216. Sound and picture toy. **36**: 1242—1964
Criner, Harry E. 3,124,660. Read head for magnetic surface recording. **36**: 1424—1964
Curran, Bernard E., Glenn E. Kautz, and Theodore W. Marshall. 3,059,564. Low noise air distributor. **36**: 247—1964
Curran, Daniel R., William J. Gerber, and Antonio Lungo. 2,927,285. Housing for ceramic ladder filter. **36**: 404—1964
Czarnecki, Eli D. 3,063,327. Chord organ. **36**: 2280—1964

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Dahl, Carl B. 3,080,014. Suppression of objectionable noise in rotating machinery. **36**: 1242—1964
Dall, Albert H. 2,998,867. Vibration damper. **36**: 2284—1964
Dally, Roy (see Fabel, George W.). **36**: 804—1964
—— (see Pritchard, Peter E.). **36**: 1239—1964
Damewood, Glenn and Miles T. Hanchett. 2,997,124. Mechanical vibration reducing apparatus. **36**: 2284—1964
Da Moude, Homer H. (see Wolff, Hubert G.). **36**: 248—1964
Daniel, Nathan I. 3,092,792. Electro-acoustical delay line useful for producing reverberation in electrical musical instruments. **36**: 2439—1964
Daniel, William A. (see Alleman, Ray S.). **36**: 805—1964
Daniels, Howard L. 3,087,026. Boundary displacement magnetic recording apparatus. **36**: 1423—1964
Danley, Dayton Herschel. 3,071,155. Rotary valve for fluid operated musical instruments. **36**: 2436—1964
David, Edward E., Jr. 3,069,507. Autocorrelation vocoder. **36**: 1243—1964
de Koning, Cornelis. 3,102,170. Device for selectively erasing two or more adjacent magnetic tracks of a magnetic tape. **36**: 247—1964
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Dell, Hugh A. and Michael A. Snelling. 3,046,501. Acoustic solid delay lines. **36**: 999—1964
Denton, Robert L. 3,105,193. Visual frequency indicator for broad band sonar monitor. **36**: 637—1964
De Prisco, Carmine F. (see Elmore, William C.). **36**: 2284—1964
Der, Chuck F. 3,129,367. Transducer ultrasonic power supply. **36**: 2277—1964
DeRosa, Adrian L. 3,018,335. Bi-plex stereophonic recording and reproducing system. **36**: 2433—1964
Dersch, William C. 3,094,586. Signal conversion circuits. **36**: 1425—1964
de Vries, Machiel. 3,136,554. Stereophonic pick-up. **36**: 2433—1964
—— 3,136,555. Stereophonic pick-up. **36**: 2434—1964
Dick, Louis A. and Lloyd G. Martyn. 3,069,572. Piezoelectric device. **36**: 806—1964
Dickieson, Alton C. 3,102,505. Signal controlled steering systems. **36**: 407—1964
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—— **and Constantine D. Pezaris.** 3,122,054. Audiovisual projection system. **36**: 1610—1964
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Dragt, Jan Cornelis Willem. 3,105,691. Pick-up for use with record players. **36**: 1003—1964
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Durst, Frederick R. (see Durst, Carl F.). **36**: 2434—1964

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Eckel, Oliver C. 3,086,325. Assembly of acoustical members. **36**: 2431—1964
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Elmore, William C. and Carmine F. De Prisco. 3,054,309. Vibratory device. **36**: 2284—1964
Engel, Walter (see Kuhrt, Friedrich). **36**: 1422—1964
—— (see Wolf, Christian-Friedrich). **36**: 1241—1964
Enya, Choshi. 3,064,517. Mechanism for regulating chord base tones of a chord organ. **36**: 2281—1964
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Evans, Chauncey Richard. 3,073,202. Timbre control for string instruments. **36**: 2437—1964
—— 3,105,569. Loud speaker assembly. **36**: 243—1964
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Fabel, George W. and Roy Dally. 3,093,379. Phonograph tone arm. **36**: 804—1964
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Graef, Daniel R. 3,133,989. Amplifier control circuit. **36**: 2432—1964
—— (see Freimann, Frank M.). **36**: 999—1964
Graner, William R. 3,120,875. Sonar dome. **36**: 1426—1964
Granger, Thomas L. (see Marcyes, Vernie W.). **36**: 998—1964
Granius, Emil J. 3,129,626. Chord-forming attachment for stringed musical instrument. **36**: 1982—1964
Grant, John. 3,071,647. Intercommunication system. **36**: 805—1964
Gray, Vivian C. 3,090,461. Electrical sound reproducing devices. **36**: 242—1964
Green, Charles E. 3,137,362. Anechoic sonar calibration pool. **36**: 2285—1964
Greenbaum, William (see Rosemond, Leland E.). **36**: 241—1964
Greenberg, Walter H. 3,123,176. Sonar dome. **36**: 1612—1964
—— (see McCoy, John Harvey). **36**: 1986—1964
Greider, Roger E. 3,063,328. Vocal pitch finder. **36**: 2434—1964
Grohmann, Emil. 3,080,938. Plate-shaped sound-absorbing element. **36**: 1236—1964
Grolitzer, Arthur J. (see Metzner, Robert G.). **36**: 1004—1964
Guth, Frederick A. 3,058,382. Piano action. **36**: 2435—1964
Gutterman, Robert P. (see Hall, Harry H.). **36**: 1244—1964

H

Hagelstein, Emma A. (see Hagelstein, Harry R.). **36**: 247—1964
Hagelstein, Harry R. and Emma A. Hagelstein. 3,093,911. Musical typewriter. **36**: 247—1964
Hagen, Robert A. (see Auer, John H., Jr.). **36**: 1002—1964
Hall, Harry H. and Robert P. Gutterman. 3,115,833. Acoustical Doppler firing device. **36**: 1244—1964
Hall, Michael A. (see Weber, Peter E.). **36**: 1426—1964
Hall, Roy. 3,129,628. Music teaching device. **36**: 1981—1964
Halliday, William (see Hopkin, Peter Roy). **36**: 1245—1964
Hammes, Josef J. 3,108,654. Integral loud speaker baffle. **36**: 1000—1964
Hammill, Harry B. (see Schwartz, Harold O.). **36**: 2432—1964
Hammond, Robert J. 3,121,567. Phonograph tone arm. **36**: 1610—1964
Hanchett, Miles T. (see Damewood, Glenn). **36**: 2284—1964
Hanert, John M. 3,056,328. Electrical musical instrument employing piano damper pedal operated switch. **36**: 2280—1964
—— 3,070,659. Artificial reverberation control apparatus. **36**: 634—1964
Harris, Wilbur T. 3,030,606. Hollow conical electromechanical transducer. **36**: 633—1964
—— 3,105,161. Hollow conical electromechanical transducer in sealed housing. **36**: 633—1964
Haslett, Roy William George (see Brown, Thomas G.). **36**: 1005—1964
—— (see Sparling, Stanley Capel). **36**: 249—1964
Hassan, Joseph A. 3,095,941. Loud speaker construction. **36**: 243—1964
Hathway, Jarrett Lewis. 3,127,584. Adjustable bearing channel for echo ranging system. **36**: 1785—1964
Havivi, Mosa and Max Frirsz. 3,096,676. Tailpiece for stringed instruments. **36**: 247—1964
Hawkins, William R. 3,123,332. Mounting for phonograph tone arms. **36**: 1420—1964
Hayasaka, Toshio, Kenro Masuzawa, Ryozo Araki, and Kiyoshi Tajima. 3,092,693. Electromagnetic receiver. **36**: 633—1964
Heacock, R. H. 2,956,129. Stereophonic sound for drive-in theatres. **36**: 1783—1964
Hearne, Joseph H. 3,095,059. Tone cabinets. **36**: 242—1964
Hellekjaer, Kaare (see Rosemond, Leland E.). **36**: 241—1964
Hembrooke, Emil Frank. 3,004,104. Identification of sound and like signals. **36**: 2442—1964
Henry, Elliot A. 3,050,989. Carrier technique for wide-range ultrasonic inspection. **36**: 1983—1964
Hervé, Marcel. 3,127,481. Bidirectional transducers. **36**: 1784—1964
Hildebrandt, Alexander B. 3,067,404. Vibration detector. **36**: 636—1964
Hill, Joseph M. 3,101,404. Welding method employing ultrasonic energy. **36**: 1244—1964
Hofman, Wytze. 3,129,298. Electrodynamic conical loudspeaker. **36**: 1782—1964
Holladay, Fred O. and Richard Kobler. 3,046,019. Indexing system for magnetic recorders. **36**: 1421—1964
Hollander, Lewis E., Jr. 3,121,337. Piezoresistive transducer employing oxygen-deficient rutile as the piezoresistive material. **36**: 1784—1964
Holman, Howard E. 3,095,465. Switch for electronic musical instruments. **36**: 2440—1964
Holt, John E. 3,060,784. Switch arrangement for electronic organs. **36**: 2280—1964
Holt, William J., Jr. 2,939,971. Mechanical vibratory unit. **36**: 1785—1964
Honda, Seiichi and Yuzo Nakazawa. 3,015,789. Mechanical filter. **36**: 635—1964
Hopkin, Peter Roy and William Halliday. 3,119,091. Echo-ranging and the like. **36**: 1245—1964
—— (see Sparling, Stanley Capel). **36**: 249—1964

Hopkins, James C. and Owen G. Bennett. 3,097,600. Sound generator. **36**: 248—1964
Hopner, Emil and Maxwell C. Andrews. 3,069,506. Consonant response in narrow band transmission. **36**: 1243—1964
Hornyak, William F. 3,046,337. Stereophonic sound. **36**: 1002—1964
Horovitz, Marcus. 3,003,738. Resilient mountings. **36**: 1426—1964
Horzick, Joseph (see Huff, Robert S.). **36**: 405—1964
Hoshino, Yasushi, Mamoru Namikawa, and Shigezo Tochihara. 3,061,085. Pack for magnetic sound record sheets. **36**: 1422—1964
——, **Mamoru Namikawa, and Shigezo Tochihara.** 3,093,709. Apparatus for printing magnetic sound record provided with a device for the inspection of the intensity of printed magnetic sound record. **36**: 1240—1964
Huff, Robert S. and Joseph Horzick. 3,090,462. Cabinet for sound reproducing equipment. **36**: 405—1964
Hurt, Percy F. 3,071,975. Accelerometer. **36**: 637—1964
Hurvitz, Hyman. 3,055,258. Bragg diffraction ultrasonic devices. **36**: 2283—1964
Hutson, Andrew R. 3,093,758. Piezoelectric devices utilizing cadmium sulfide. **36**: 247—1964

I

Inderwiesen, Frank H. 3,093,743. Resonant reed frequency sensitive control apparatus. **36**: 1238—1964
Iorio, Amedeo. 3,052,147. Switch for electronic musical instrument. **36**: 2279—1964
Ippolito, Anthony C. 3,070,660. Rotary electrical apparatus. **36**: 2282—1964
—— (see Schwartz, Harold O.). **36**: 2441—1964
Irick, John. 2,929,877. Microphone unit. **36**: 803—1964
Isenberg, Sampson, Robert J. Moon, and Albert E. Shaw. 3,099,447. Sonic pin detection means. **36**: 1237—1964
Iwamura, Hiroshi. 3,042,753. Magnetic recorder. **36**: 244—1964

J

Jahn, Paul (see Junghans, Helmut). **36**: 1782—1964
Janowsky, R. H. 3,005,873. Stereophonic background music and public address system. **36**: 1783—1964
Jaquith, Douglas. 3,134,287. Self-adjusting bridge for viol instruments. **36**: 2278—1964
Javorik, Laszlo J. 3,092,692. Magnetic transcriber. **36**: 1240—1964
Jenkins, Edward M. (see Carter, David C.). **36**: 631—1964
Jenn, Louis J. and William E. Morrison. 3,085,647. Acoustic curb. **36**: 2282—1964
Jerger, James F. 3,091,234. Method for testing hearing acuity. **36**: 404—1964
Jess, Harring. 3,102,991. Sonar equipment for single-transducer operation. **36**: 637—1964
Johannson, James W. 3,126,518. Adjustable temperature compensated transducer. **36**: 2278—1964
Johnson, Jarl A. 3,042,749. Portable sound reproducing apparatus. **36**: 1002—1964
Johnson, Jay L. 3,117,190. Stereophonic phonograph pickup. **36**: 1004—1964
Johnson, Wayne R. 3,049,595. Transducing system. **36**: 1421—1964
—— 3,051,797. Transducing system. **36**: 245—1964
—— 3,053,941. Magnetostrictive transducer for the recording and reproducing of magnetic information. **36**: 245—1964
Johnston, Alan R. 3,091,972. Accelerometer. **36**: 1984—1964
Jones, James Byron and Nicholas Maropis. 3,106,856. Support for workpiece to be subjected to vibratory energy. **36**: 1612—1964
Jordan, Roy E., Jr., Howard D. Mays, and Karl M. Claus. 3,084,402. Acoustical panel. **36**: 2275—1964
Joy, Ivan L. 3,055,210. Coupling liquid apparatus for ultrasonic testing. **36**: 2277—1964
Junger, Miguel C. 3,100,994. Pulse-echo gauging system. **36**: 1237—1964
—— 3,111,595. Low frequency resonant transducers. **36**: 806—1964
Junghans, Helmut and Paul Jahn. 3,125,987. Chiming timepiece with sound radiating diaphragm coupled with the sound producer. **36**: 1782—1964

K

Kaiser, James F. 3,057,960. Normalized sound control system. **36**: 807—1964
Kalfaian, Meguer V. 3,052,757. Frequency normalization in speech sound waves. **36**: 808—1964
—— 3,067,288. Phonetic typewriter of speech. **36**: 1243—1964
Kaminski, Richard K. 3,104,543. Acoustical vibration test device. **36**: 1611—1964
Kaspaul, Erika Erna. 3,098,126. Magnetic transducer device. **36**: 1241—1964
Katzenberger, Ralph H. 2,992,569. Vibration damper assembly. **36**: 1425—1964
Kausch, Werner. 3,048,663. Stereophonic amplifier and loudspeaker system. **36**: 1002—1964
Kautz, Glenn E. (see Curran, Bernard E.). **36**: 247—1964
Keeling, Harold G. 3,137,846. Electronic sirens. **36**: 2441—1964
Kelley, Bartram. 3,010,679. Dephased accelerometer. **36**: 407—1964
Kendall, Hugh C. (see Auer, John H., Jr.). **36**: 1002—1964
Kerwin, Edward M., Jr. 3,087,565. Apparatus for damping. **36**: 2275—1964
—— 3,087,571. Apparatus for damping. **36**: 2276—1964
Kiefer, Paul J., Jr. (see Gams, Theodore C.). **36**: 1421—1964
Kikuchi, Shoji (see Suzuki, Ken). **36**: 1981—1964
King, James C. 3,113,224. High temperature quartz piezoelectric devices. **36**: 1005—1964
Kistler, Walter P. 3,111,036. Inverted pendulum accelerometer. **36**: 1985—1964
Kleesattel, Claus, Arthur Kuris, and Lewis Balamuth. 3,053,125. Ultrasonic multistation or gang welding. **36**: 2277—1964
—— (see Balamuth, Lewis). **36**: 2283—1964
—— (see Kuris, Arthur). **36**: 1983—1964
Kleinerman, Benjamin B. 3,090,536. Tape recorder. **36**: 246—1964
Kleis, Derk, Gerrit Schenkel, and Adrianus Bierens. 3,088,001. Electrodynamic device. **36**: 242—1964
—— **and Johannes Snoek.** 3,070,658. Stereophonic sound collecting device. **36**: 405—1964
—— (see Vermeulen, Roelof). **36**: 1238—1964
Knausenberger, Georg E. 3,210,756. Acoustic probe. **36**: 1238—1964
Kobler, Richard (see Holladay, Fred O.). **36**: 1421—1964
Koehl, James A. 3,054,318. Electrical musical instruments. **36**: 2279—1964
Kompanek, Harry W. 3,101,421. Elastic wave vibrator. **36**: 408—1964
Kopp, Arthur R. 3,117,189. Electromechanical transducer. **36**: 1003—1964
Kovach, Julius William and Sampson T. Noall, Jr. 2,951,641. Noiseless mixing valve. **36**: 807—1964

Krebs, Leo. 3,116,357. Musical instrument. **36**: 1242—1964
Kritz, Jack. 3,123,727. High power sonic transducers. **36**: 1785—1964
Krug, William H. 3,073,204. Percussion system for an electronic musical instrument. **36**: 2437—1964
—— (see Gibbs, Thomas B.). **36**: 2438—1964
Kuchera, Joseph. 3,075,044. Method and apparatus for obtaining sound. **36**: 1425—1964
Kuhrt, Friedrich. 3,041,416. Transducer system for magnetic signals. **36**: 244—1964
——, **Walter Engel, and Christian-Friedrich Wolf.** 3,071,654. Transducer for magnetic recordings. **36**: 1422—1964
Kuris, Arthur, Lewis Balamuth, and Claus Kleesattel. 3,051,027. Ultrasonic welding. **36**: 1983—1964
—— (see Balamuth, Lewis). **36**: 2283—1964
—— (see Kleesattel, Claus). **36**: 2277—1964
Kurtze, Guenther. 3,087,567. High acoustic-energy transmission-loss panel and the like. **36**: 2432—1964
—— 3,087,568. Vibration-damped structure. **36**: 2276—1964
—— 3,087,569. Vibration-damping structure. **36**: 2276—1964
Kylin, Anne (see Kylin, Hjalmar). **36**: 1785—1964
Kylin, Hjalmar and Anne Kylin. 3,128,665. Musical note meter. **36**: 1785—1964

L

Lakamp, William F. (see Quitter, John P.). **36**: 2436—1964
Lane, Norman. 3,093,335. Tape recording and reproducing apparatus. **36**: 246—1964
Lang, Morris and Saul Goodman. 3,136,201. Drum. **36**: 2434—1964
Lang, Paul (see ten Bosch, Maurits). **36**: 1985—1964
Lang, Robert J. 3,103,310. Sonic atomizer for liquids. **36**: 1612—1964
Larrick, Howard M. and Walter R. Brosch. 3,049,699. Sound actuated detection and alarm system. **36**: 1002—1964
Lasarev, Nikolai (see Anderson, Charles E.). **36**: 1242—1964
Laubenfels, Clarence R. 3,064,483. Accelerometer. **36**: 635—1964
Laurien, Ira M. (see Arsem, Alvan Donald). **36**: 2281—1964
Laux, David E. 3,102,171. Monophonic-stereophonic phonograph cartridge. **36**: 805—1964
—— 3,106,670. Magnetic field structure for loudspeakers. **36**: 999—1964
Lauxen, Carl, Martin Lewis Levene, and David L. Nettleton. 3,123,677. Magnetic recording system. **36**: 1424—1964
Le Caine, Hugh. 3,095,466. Keyboard for a monophonic instrument with improved sound-sustaining means. **36**: 2440—1964
Lee, Hop. 3,131,590. Musical whistle. **36**: 1982—1964
Lemelson, Jerome H. 2,980,123. Ultrasonic apparatus. **36**: 1982—1964
Lemmerman, Richard D. (see Gildard, James H.). **36**: 1236—1964
Leslie, Donald J. 3,080,786. Speaker system for adding tremolo. **36**: 2438—1964
—— 3,095,477. System for recording and reproducing electric organ music. **36**: 244—1964
Lesserson, Eugene (see Godfrey, James E.). **36**: 1002—1964
Levene, Martin Lewis (see Lauxen, Carl). **36**: 1424—1964
Lewis, Frederick Willard. 3,125,646. Electromagnetically coupled hearing aid. **36**: 2276—1964
Lo Duca, Thomas S. 3,057,245. Key arrangements for chord organs. **36**: 2280—1964
Loeb, Julien M. 3,122,664. Electrical generator of mechanical vibrations. **36**: 1785—1964
Lomaz, Daniel D. (see Church, Melvin E.). **36**: 2282—1964
Lorenz, Friedrich. 3,075,050. Apparatus for carrying out time, work and motion studies. **36**: 1423—1964
Lovering, Larry J. 3,107,440. Audiometry equipment. **36**: 803—1964
Luchsinger, Charles R. 3,092,927. Sound emitting device. **36**: 999—1964
Lumney, Frank B. (see Riggs, John H.). **36**: 2437—1964
Lungo, Antonio (see Curran, Daniel R.). **36**: 404—1964
Lyon, William H. 3,054,861. Automatic synchronous clutch for magnetic recorder-reproducer equipment. **36**: 1421—1964
—— 3,080,169. Magnetic tape channel-loading dictating machine. **36**: 246—1964

M

Machanian, William V. (see Schwartz, Harold O.). **36**: 2441—1964
Macken, John T. (see Rosemond, Leland E.). **36**: 1781—1964
Macks, Elmer Fred and John A. Funk. 3,103,364. Phonograph turntable. **36**: 805—1964
Marchetti, Carlo. 3,019,030. Mechanical vibration damping system. **36**: 2284—1964
Marcum, Norman E. and William A. Farrand. 3,047,869. Rotatable magnetic disc movable toward and from disc carrying transducer. **36**: 1421—1964
Marcyes, Vernie W. and Thomas L. Granger. 3,050,264. Sound actuated control system for ball mill and the like. **36**: 998—1964
Mares, Santos J. 3,131,783. Loud-speaker enclosure. **36**: 1782—1964
Markowitz, Jerome. 3,064,515. Electronic harpsichord loudspeaker arrangement and the like. **35**: 2281—1964
Marks, Wilbur, Robert G. Tuckerman, and Willis S. Campbell. 3,110,178. Disposable accelerometer wave buoy. **36**: 808—1964
Maropis, Nicholas (see Jones, James Byron). **36**: 1612—1964
Marshall, Theodore W. (see Curran, Bernard E.). **36**: 247—1964
Marsich, Joseph A. 3,055,252. Musical instrument. **36**: 2435—1964
Martin, John L. 3,130,626. Strings for musical instruments. **36**: 1982—1964
Martyn, Lloyd G. (see Dick, Louis A.). **36**: 806—1964
Massa, Frank. 3,088,059. Apparatus for improving the linearity of electromechanical transducers. **36**: 806—1964
—— 3,128,532. Method of making electroacoustic transducers. **36**: 2278—1964
Masuzawa, Kenro (see Hayasaka, Toshio). **36**: 633—1964
Mathews, Max V. and Joan E. Miller. 3,083,266. Vocoder apparatus. **36**: 1243—1964
Mattiat, Oskar E. 2,943,279. Piezoelectric band pass filter. **36**: 632—1964
Maurer, John A. 3,108,160. Apparatus for optically recording a sound record area on a strip of film. **36**: 632—1964
May, Oscar R. 3,067,834. Speaker unit for drive-in theater. **36**: 241—1964
Maynard, John T. 3,123,726. Ultrasonic vibration control of thermionic devices. **36**: 1784—1964
Mays, Howard D. (see Jordan, Roy E., Jr.). **36**: 2275—1964
McAuley, James W. 3,099,759. Sonic treating apparatus. **36**: 1244—1964
McClure, Charles G. 3,107,521. Ultrasonic inspection apparatus. **36**: 1612—1964

McCoy, John Harvey and Walter H. Greenberg. 3,136,380. Sonar dome and self-damping component thereof. **36**: 1986—1964
McGee, Paul J. 3,126,977. Hearing aid apparatus. **36**: 2277—1964
McGervey, Paul J. (see Thomas, George W.). **36**: 802—1964
McGinley, James H. (see Eiland, Phillip Frank, Jr.). **36**: 1986—1964
McKitrick, Herbert E. 3,083,608. Pipe organ servicing apparatus. **36**: 2435—1964
McManis, Louis B. 3,042,754. Two channel phase modulation. **36**: 244—1964
McPherson, Hugh A., II. 3,016,971. Tuned sound deadener. **36**: 406—1964
Meek, George W. 3,070,186. Structural building panel unit. **36**: 632—1964
Meeker, Willard F. (see Carrell, Ross M.). **36**: 1419—1964
Mendelson, Emanuel S. 3,110,356. Earplug. **36**: 803—1964
Metzner, Robert G. and Arthur J. Grolitzer. 3,045,065. Intercommunication system. **36**: 1004—1964
Miessner, Benjamin F. 3,077,137. Electrical pick-up for a reed musical instrument. **36**: 2438—1964
Miller, Harry B. 3,066,233. Ferrite transducers. **36**: 637—1964
Miller, Joan E. (see Mathews, Max V.). **36**: 1243—1964
Miller, Norman B., Miles T. Pigott, David C. Whitmarsh, and Richard O. Rowlands. 3,113,286. Acoustical wave direction determining device. **36**: 1006—1964
Miller, Ross Jay and George Adelbert Noddin. 3,102,474. Sonic pulse generating device. **36**: 638—1964
Miner, Carroll R. 3,114,429. Loudspeaker. **36**: 1000—1964
Minter, Jerry B., 2nd. 3,067,292. Stereophonic sound transmission and reproduction. **36**: 803—1964
Minton, Jack A., Jr., and Don B. Wilson. 3,123,680. Mouthpiece for submarine use. **36**: 2283—1964
Mitchell, William F. (see Taylor, Douglas E.). **36**: 1980—1964
Miura, Shigeru (see Tanaka, Tetsuro). **36**: 405—1964
Moffatt, Robert S. M. and Kenneth Storer. 3,111,027. Ultrasonic test apparatus. **36**: 1005—1964
Montagu, Jean I. 3,112,375. Loudspeaker construction. **36**: 1000—1964
Moon, Robert J. (see Isenberg Sampson). **36**: 1237—1964
Moore, Jurden. 3,122,609. Communication means for skiing apparatus. **36**: 2282—1964
Morey, Robert E. 3,079,468. Magnetic recording and reproducing. **36**: 245—1964
Morgan, James J. 3,060,750. Balanced accelerometer. **36**: 808—1964
Morgillo, Pellegrino J. 3,089,562. Loudspeaker baffle assembly. **36**: 242—1964
Moriya, Ikuro. 3,105,880. Magnetic transducer with sequentially scanning heads. **36**: 1423—1964
Morrison, William E. (see Jenn, Louis J.). **36**: 2282—1964
Morse, Arthur O. (see Rabinow, Jacob). **36**: 2434—1964
Moshay, Joseph S. 3,112,668. Instrument for playing guitars, banjos and the like. **36**: 1005—1964
Mullin, Clayton D. and John F. Rose. 3,105,876. Hearing checking device. **36**: 241—1964
—— (see Behymer, Donald J.). **36**: 998—1964
Munch, Walter, Jr. 3,091,148. Tone color circuits for electrical organs. **36**: 2439—1964

N

Nakazawa, Yuzo (see Honda, Seiichi). **36**: 635—1964
Namenyi-Katz, Laszlo. 3,080,455. Magnetic recording heads. **36**: 246—1964
Namikawa, Mamoru (see Hoshino, Yasushi). **36**: 1240, 1422—1964
Nettleton, David L. (see Lauxen, Carl). **36**: 1424—1964
Neumann, Georg. 3,133,161. Electro-mechanical transducer with negative feedback for the recording and reproduction of sound waves. **36**: 2433—1964
Noall, Sampson T., Jr. (see Kovach, Julius William). **36**: 807—1964
Noddin, George Adelbert. 3,112,699. Sonic pulse generator. **36**: 809—1964
—— (see Miller, Ross Jay). **36**: 638—1964

O

Ohlson, Leonard T. (see Tannenbaum, Wesley). **36**: 1421—1964
Öhlund, John Alex Ingvar. 2,965,873. Balistic missile shock wave detector. **36**: 803—1964
Ohnuki, Akira (see Shinada, Toshio). **36**: 806—1964
Oliveros, Eliseo V. (see Comerci, Frank A.). **36**: 243—1964
Olson, Harry F. 3,118,977. Multi-groove stereophonic sound recording and reproducing system. **36**: 1239—1964
—— **and Herbert Belar.** 3,078,752. Circuit for simulating vibrato effect by amplitude modulation of tone by sawtooth waveform. **36**: 2438—1964
Orlacchio, Anthony W. 3,093,759. Accelerometer. **36**: 1984—1964
Osborne, Fred H. 3,064,097. Resonant reed relay. **36**: 806—1964
—— (see Arsem, Alvan Donald). **36**: 2281—1964
Ostrander, Robert K. 3,093,928. Multivoice unit. **36**: 634—1964

P

Pankratz, A. J. and Robert M. Shoemaker. 3,075,051. Transducer assembly for magnetic recorders. **36**: 1423—1964
Parker, Bernard. 3,068,704. Gas bearing accelerometer. **36**: 636—1964
Parker, Harold N. (see Fremont, Herbert). **36**: 804—1964
Pasieka, John F. 3,097,534. Acceleration indicator. **36**: 1984—1964
Pawlowski, Robert J. 3,125,181. Loudspeaker system. **36**: 1609—1964
Peebles, Benjamin W. and David H. Shuttleworth. 3,077,947. Sound insulation sheet material. **36**: 802—1964
Pennati, Giancario. 3,074,339. Sound-proofing, ventilating and conditioning. **36**: 631—1964
Peterson, Edward S. 2,934,609. Variable message length automatic recorder announcer. **36**: 1239—1964
Peterson, Edwin F. 3,097,537. Vibration-inducing apparatus. **36**: 1985—1964
Pezaris, Constantine D. (see Dimitracopoulos, Panayotis C.). **36**: 1610(2 patents)—1964
Pickering, Norman C. (see Fortman, William K.). **36**: 1783—1964
Pigott, Miles T. (see Miller, Norman B.). **36**: 1006—1964
Pihl, Cedric H. 3,106,860. Percussion instrument. **36**: 634—1964
Piltz, Franklin. 2,985,010. Shaft vibration responsive apparatus. **36**: 407—1964
Plummer, Walter A. 2,949,975. Pneumatic tool muffle. **36**: 807—1964
Polster, Morton A. 3,046,519. Ultrasonic vehicle detection system. **36**: 1002—1964
—— 3,046,520. Ultrasonic vehicle detection system. **36**: 1002—1964
Poschenrieder, Werner. 3,078,427. Electromechanical filter with piezoelectric drive. **36**: 1237—1964

Prentiss, John G. and John T. Valaskovic. 3,123,678. Hearing aid apparatus. **36**: 2276—1964
Prestigiacomo, A. J. 3,020,344. Apparatus for derivng pitch information from a speech wave. **36**: 634—1964
Price, Marlin L. 3,109,072. Loud-speaker. **36**: 1000—1964
Pritchard, Peter E. and Roy Dally. 3,118,978. Magnetic stereophonic phonograph cartridge. **36**: 1239—1964
Proctor, Barton A. 3,102,699. Improved drive for sound recording and reproducing apparatus. **36**: 1423—1964
—— 3,111,282. Magnetic sound reproduction. **36**: 1241—1964

Q

Quade, Edward A. 3,017,617. Magnetic transducers. **36**: 1420—1964
Quitter, John P., Merton D. Corwin, and William F. Lakamp. 3,072,005. Piano construction. **36**: 2436—1964

R

Rabinow, Jacob. 3,129,946. Phonograph arm. **36**: 2433—1964
—— **and Arthur O. Morse.** 3,138,669. Record player using light transducer and servo. **36**: 2434—1964
Ramsey, Robert C. (see Beaverson, Wayne A.). **36**: 243—1964
Ranger, Richard H. 3,065,816. Stereophonic sound distributor. **36**: 405—1964
—— 3,066,189. Sound system. **36**: 2432—1964
Rankin, Alexander B. C. (see Brown, Thomas G.). **36**: 1005—1964
Raymond, Chester A. 3,036,325. Quickly mountable, cavity type pipe organ valve. **36**: 2434—1964
Renaut, Jean-Jacques and Jacques Dory. 3,052,115. Ultrasonic apparatus for examining the interior of solid bodies. **36**: 1983—1964
Renner, Gerard W. 3,113,287. Electroacoustical transducer mounted on boat hull. **36**: 1006—1964
Renoux, Robert Albert. 3,094,744. Method and means of stamping gramophone records. **36**: 804—1964
Rettinger, Michael. 3,079,467. Magnetic head construction. **36**: 245—1964
Reuther, Günther. 3,098,205. Butt joint for unweldable vibratory bodies. **36**: 1983—1964
Rich, Alan H. 3,116,472. Multichannel logarithmic integrating computer. **36**: 1239—1964
Rich, Stanley R. 3,050,720. System for sensing a change in an ambient condition. **36**: 1005—1964
—— 3,072,805. Autopolarization of electrostrictive transducers. **36**: 633—1964
Rich, Theodore A. 2,868,968. Logarithmic translating circuit. **36**: 1783—1964
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——, **Anthony C. Ippolito, and William V. Machanian.** 3,085,467. Sound generating means. **36**: 2441—1964
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Shintaku, Keiichi. 2,944,509. Horn device. **36**: 1782—1964
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Wolf, Christian-Friedrich and Walter Engel. 3,114,010. Method and means for recording and reproducing magnetic signals. **36**: 1241—1964

—— (see Kuhrt, Friedrich). **36**: 1422—1964

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Digital computer simulation of a sampled-data voice-excited vocoder. [J. Acoust. Soc. Am. **35**, 1358–1366 (1963)]. Roger M. Golden. **36**: 398—1964

Effect of practice and feedback on frequency discrimination [J. Acoust. Soc. Am. **35**, 1511–1514 (1963)]. Richard A. Campbell and Arnold M. Small, Jr. **36**: 210—1964

Method for the calculation and use of the articulation index [J. Acoust. Soc. Am. **34**, 1689–1697 (1962)]. K. D. Kryter. **36**: 1393—1964

Normal vibration frequencies of a stiff piano string [J. Acoust. Soc. Am. **36**, 203–209 (1964)]. Harvey Fletcher. **36**: 1214—1964

Recording the waveforms of periodic acoustic signals at levels near and below 0.0002μ bar [J. Acoust. Soc. Am. **36**: 1591–1593 (1964)]. James D. Miller, A. Maynard Engebretson, and Peter B. Weston. **36**: 2234—1964

Transfer function of the middle ear. [J. Acoust. Soc. Am. **35**, 1526–1534 (1963)]. Aage R. Møller. **36**: 779—1964

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New concrete of excellent durability withstands blast of turbojet engines. 36: 1225—1964
Oceanographic and acoustic scientists of the USSR visit Boston, Massachusetts. J. H. Stanbrough. 36: 1606—1964
Pennsylvania State University summer seminars. 36: 1223—1964
Picturephone system demonstrated. 36: 1604—1964
Rapid calibrator for small hydrophones. 36: 402—1964
Recent events in Australia. 36: 2426—1964
Report to the National Science Foundation on Conference on Education in Acoustics. R. Bruce Lindsay. 36: 2241—1964
Riverbank to use pink noise for TL measurements. 36: 1971—1964
Shipboard pipe systems analyzed for liquidborne noise reduction. 36: 401—1964
Some recent developments in England. 36: 980—1964
Symposium on hypersonic flow. 36: 1603—1964
The Acoustical Society of Japan. 36: 1607—1964
The Institute of Sound and Vibration Research. 36: 1749—1964
Third Czechoslovakian Conference on Acoustics 1963. 36: 1230—1964

0.6 Biographical, Historical, and Personal Notes, not of the Acoustical Society of America

Albert Beaumont Wood, 1890–1964. W. L. Borrows. 36: 2248—1964
An acoustical journey to the Soviet Union. M. R. Schroeder. 36: 1403—1964
Ian Alexander Gatenby 1926–1963. 36: 798—1964

ICA and international cooperation in acoustics. F. V. Hunt, R. Bruce Lindsay, and George W. Wood. 36: 1228—1964
John Henry Mole, 1915–1963. 36: 798—1964
Josef Bartoloměj Slavík, 1900–1964. 36: 1749—1964
Tribute to Professor Erwin Walter Meyer on the occasion of his 65th birthday. Vern O. Knudsen. 36: 1402—1964

0.7 **Editorials**

Editorial: Applied acoustics and the Journal. R. Bruce Lindsay. 36: 1787—1964

1 **ACOUSTICAL SOCIETY OF AMERICA**

1.1 **General, Unclassified**

A new department. 36: 798—1964
Announcement of forthcoming election. 36: 220—1964
A resolution opposing laws to require licensing or certification for research in psychoacoustics and related areas of psychology. 36: 1744—1964
Burned ballots. Wallace Waterfall, Secretary. 36: 794—1964
Classification Index of the Journal is revised. 36: 221—1964
Excerpts from the Report of the Editor-in-Chief to the Executive Council of the Society at the New York meeting, May 1964. R. Bruce Lindsay. 36: 1741—1964
Fourth Cumulative Index of JASA. 36: 1398—1964
Note on articles in foreign languages. 36: 1971—1964
Publication of *SOUND—Its Uses and Control* is discontinued. 36: 221—1964
Report of the Treasurer. 36: 2422—1964

1.4 **Honorary Members**

Dedication of Vern O. Knudsen Hall at the University of California at Los Angeles. 36: 2240—1964

1.5 **Meetings**

Author Index to papers presented at the 67th Meeting of the Acoustical Society of America. 36: 1053—1964
Author Index to papers presented at the 68th Meeting of the Acoustical Society of America. 36: 2018—1964
Conference on education in acoustics. 36: 1223—1964
Dates of future meetings of the Acoustical Society. 36: 222, 403, 613, 795, 979, 1226, 1401, 1605, 1748, 1972, 2247, 2421—1964
New York Meeting of the Acoustical Society of America, May 1964. 36: 222—1964
1964 May Meeting in New York. 36: 402—1964
Program of the Sixty-Seventh Meeting of the Acoustical Society of America, Hotel New Yorker, New York, 6–9 May 1964. 36: 1007—1964
Program of the Sixty-Eighth Meeting of the Acoustical Society of America, The University of Texas, Austin, Texas, 21–24 October 1964. 36: 1987—1964
Rules and instructions for the preparation of abstracts of papers to be presented at meetings of the Acoustical Society of America. 36: 222, 403, 613, 794, 979, 1227, 1401, 1605, 1748, 1972, 2247, 2421—1964
66th Meeting, 1963, Ann Arbor. C. P. Boner. 36: 605—1964

1.6 **Members and Membership Lists**

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Biennial Award 1964, Tony Frederick Wallace Embleton. George J. Thiessen. 36: 974—1964
Dedication of Vern O. Knudsen Hall at the University of California at Los Angeles. 36: 2240—1964
Edmund Prince Fowler, Jr., 1905–1964. 36: 975—1964
Edward C. Molina, 1877–1964. 36: 1601—1964
George A. Misrahy, 1919–1964. 36: 1397—1964
George W. Wood appointed Associate Editor of the Journal for "Acoustical News from Abroad." 36: 610—1964
Grant Fairbanks (1911–1964). 36: 1969(AN)—1964
Harold E. Nash becomes Technical Director of the Underwater Sound Laboratory. 36: 221—1964
Harry F. Olson receives John Ericsson Medal. 36: 791—1964
J. Warren Horton receives Pioneers of Underwater Acoustics award. 36: 607—1964
Kock to head NASA Electronics Center. 36: 2244—1964
Melville Eastham, 1885–1964. Arnold P. G. Peterson. 36: 1222—1964
Membership classification. 36: 222, 795, 1399, 1972—1964
New officers of the Society. 36: 1602—1964
New policy on acceptance and dropping of members. 36: 1604—1964
NSF establishes Division of Engineering. Dr. John Ide appointed Division Director. 36: 1970—1964
Presentation of the Biennial Award to Dr. T. F. W. Embleton. 36: 1033(T)—1964
Raymond W. Tibbetts, 1889–1964. 36: 1739—1964
Revisions to membership list. 36: 222, 399, 795, 1399, 1600, 1739, 1972—1964
Robert W. Morse appointed Assistant Secretary of the Navy for Research and Development. 36: 1969—1964
S. A. Peterson named head of Systems Development at Underwater Sound Laboratory. 36: 1603—1964
Scientists at National Bureau of Standards receive Commerce Department awards. 36: 1223—1964
Sustaining members. 36: ix, vii, ix, ix, x, viii, viii, viii, x, vi, viii, vi, vii—1964
Thomas D. Northwood succeeds Paul S. Veneklasen as Associate Editor in charge of architectural acoustics. 36: 400—1964
Two USNUSL scientists receive awards. 36: 976—1964
von Gierke receives award. 36: 2244—1964
Winston E. Kock receives Navy distinguished service award. 36: 1602—1964

1.7 **Committee Activities**

Abstracts

Report of the Acoustics Research Survey Committee. 36: 2001—1964

News

Annual Reports of Technical Committees. 36: 1743—1964

Appointment of the standing Committee on Publication Policy. 36: 1970—1964
Members of Administrative and Technical Committees of the Acoustical Society of America. 36: 1739—1964
Report to the National Science Foundation on Conference on Education in Acoustics. R. Bruce Lindsay. 36: 2241—1964
Shock and vibration. 36: 1746—1964
Standards notes. 36: 792, 976—1964
Technical committees of the Society and their chairmen. 36: 222, 403, 612, 794, 978, 1226, 1401, 1604, 1747, 2246, 2421—1964

Errata
Annual Report of the Technical Committee on Psychological and Physiological Acoustics. 36: 400—1964

1.8 Prizes, Medals, and Awards

Biennial Award 1964, Tony Frederick Wallace Embleton. George J. Thiessen. 36: 974—1964
Harry F. Olson receives John Ericsson Medal. 36: 791—1964
J. Warren Horton receives Pioneers of Underwater Acoustics award. 36: 607—1964
Presentation of the Biennial Award to Dr. T. F. W. Embleton. 36: 1033(T)—1964
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1.9 Regional Chapters

Formation of Austin Chapter of the Acoustical Society of America. 36: 1969—1964
Regional Chapter notes. 36: 221, 401, 791, 976, 1222, 1397, 1602—1964

2 ARCHITECTURAL ACOUSTICS

2.1 General, Unclassified

Papers
Owner's viewpoint in residential acoustical control. Frederick P. Rose. 36: 740—1964
Symposium on sound-insulation requirements for multidwelling buildings: foreword. William A. Jack. 36: 718—1964

Letters to the Editor
In the interest of architectural acoustics. Paul S. Veneklasen. 36: 393—1964

Abstracts
Acoustical behavior of segmented ceilings. Paul S. Veneklasen. 36: 1010—1964
Church acoustics and electronic organs. Daniel W. Martin. 36: 1033(T)—1964
Criticism of the ISO impact-noise test. T. Mariner. 36: 1024—1964
Description of the Cedar Knolls Acoustical Laboratories. Ralph Huntley and Paul B. Ostergaard. 36: 1024—1964
Diffraction of sound by an array of rectangular reflective panels. R. W. Leonard, L. P. Delsasso, and V. O. Knudsen. 36: 1010—1964
Experience in the construction of an acoustical laboratory. Paul B. Ostergaard and Lewis S. Goodfriend. 36: 1024—1964
Impact-noise measurements for some floated-floor construction. H. W. Hehmann. 36: 1024—1964
Objections and suggestions on impact and airborne-insulation measurements. G. L. Fuchs. 36: 1024—1964
Ratio of "early" to "delayed" solid energy in halls. B. G. Watters, T. J. Schultz, and D. L. Klepper. 36: 1010—1964

Book Reviews
Die wissenschaftlichen Grundlagen der Raumakustik —Band II: Statistische Raumakustik. Lothar Cremer. (Reviewed by G. M. Sessler.) 36: 1751—1964

2.2 Auditorium Design. (See also 7.6.)

Papers
Acoustics of Philharmonic Hall, New York, during its first season. Leo L. Beranek, F. R. Johnson, Theodore J. Schultz, and B. G. Watters. 36: 1247—1964
Diffraction of sound by an array of rectangular reflective panels. R. W. Leonard, L. P. Delsasso, and V. O. Knudsen. 36: 2328—1964

Abstracts
Architectural acoustics as related to church music and the organ. Robert Noehren. 36: 1033(T)—1964
Report on the acoustical requirements of religious buildings. Lewis S. Goodfriend. 36: 1033(T)—1964
Sound of architecture. Thomas L. Bosworth. 36: 1033(T)—1964

2.3 Studies of Existing Auditoria and Acoustic Enclosures

Papers
Acoustics of Philharmonic Hall, New York, during its first season. Leo L. Beranek, F. R. Johnson, Theodore J. Schultz, and B. G. Watters. 36: 1247—1964
Seattle Opera House—acoustical design. Paul S. Veneklasen and Jerry P. Christoff. 36: 903—1964
Sound transmission over theatre seats. G. M. Sessler and J. E. West. 36: 1725—1964

Abstracts
Acoustical measurements in Philharmonic Hall (New York). G. M. Sessler, B. S. Atal, M. R. Schroeder, and J. E. West. 36: 1011—1964
Acoustics of Clowes Memorial Hall, Butler University, Indianapolis, Indiana. Russell Johnson. 36: 1012—1964
Acoustics of La Grande Salle, Place des Arts, Montréal, P. Q., Canada. Russell Johnson. 36: 1011—1964
Analysis of school instrumental music-room acoustics. Nelson G. Patrick and Charles R. Boner. 36: 2014—1964
Description of the Cedar Knolls Acoustical Laboratories. Ralph Huntley and Paul B. Ostergaard. 36: 1024—1964
Digital-computer method of measuring concert-hall acoustics. M. R. Schroeder. 36: 1011—1964
Evaluating the acoustics of a completed auditorium. David L. Klepper and B. G. Watters. 36: 1011—1964

Experience in the construction of an acoustical laboratory. Paul B. Ostergaard and Lewis S. Goodfriend. 36: 1024—1964
Simulated background noise to improve acoustical privacy in buildings. J. A. Curtis and J. J. Figwer. 36: 1024—1964

2.4 **Sound Absorption: Theory and Methods of Measurement of. (See also 2.5.)**

Papers
Comparison of reverberation-room and impedance-tube absorption measurements. D. Olynyk and T. D. Northwood. 36: 2171—1964
Propagation of sound across audience seating. Theodore J. Schultz and B. G. Watters. 36: 885—1964
Reciprocal of the mean free path. Laurence Batchelder. 36: 551—1964
Sound transmission over theatre seats. G. M. Sessler and J. E. West. 36: 1725—1964

Abstracts
Absorption of upholstered chairs as related to their spacing. L. P. Delsasso. 36: 1010—1964

2.5 **Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances**

Abstracts
Comparison of reverberation-chamber and impedance-tube-absorption measurements. D. Olynyk and T. D. Northwood. 36: 1024—1964

Patents
Acoustical insulation panelling system. Joseph F. Stephens. 36: 631—1964
Acoustical panel. David C. Carter and Edward M. Jenkins. 36: 631—1964
Acoustical panel. Roy E. Jordan, Jr., Howard D. Mays, and Karl M. Claus. 36: 2275—1964
Acoustical tile or the like and its manufacture. Kurt W. Schulz. 36: 632—1964
Acoustico-illuminative tile. John A. Cooley. 36: 240—1964
Assembly of acoustical members. Oliver C. Eckel. 36: 2431—1964
Fixing of acoustic tiles. George Charles Wright. 36: 240—1964
Plate-shaped sound-absorbing element. Emil Grohmann. 36: 1236—1964
Production of acoustic tile material and tile therefrom. George W. Thomas and Paul J. McGervey. 36: 802—1964
Sound-proofing, ventilating and conditioning. Giancario Pennati. 36: 631—1964
Suspension system for ceiling panels. Thomas M. Findlay. 36: 2275—1964

2.6 **Noise Reduction by Increased Room Absorption**

Papers
Sound transmission over theatre seats. G. M. Sessler and J. E. West. 36: 1725—1964

Abstracts
Experience in the construction of an acoustical laboratory. Paul B. Ostergaard and Lewis S. Goodfriend. 36: 1024—1964
Noise control and the New York City Code Project. Michael J. Kodaras. 36: 1036—1964

2.7 **Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, 2.10, 11.2, 11.4, and 11.7.) Normal Modes in Rooms. Diffusivity. Frequency Response. Subjective Effects**

Papers
Diffraction of sound by an array of rectangular reflective panels. R. W. Leonard, L. P. Delsasso. and V. O. Knudsen. 36: 2328—1964
Perception of music heard via interfering paths. Theodore J. Schultz and B. G. Watters. 36: 897—1964
Reciprocal of the mean free path. Laurence Batchelder. 36: 551—1964
Remarks on the mean free path problem. F. V. Hunt. 36: 556—1964

Abstracts
Absorption cross section of a pipe organ. A. H. Benade. 36: 1025—1964
Acoustical behavior of segmented ceilings. Paul S. Veneklasen. 36: 1010—1964
Acoustical measurements in Philharmonic Hall (New York). G. M. Sessler, B. S. Atal, M. R. Schroeder, and J. E. West. 36: 1011—1964
Acoustics of La Grande Salle, Place des Arts, Montréal, P. Q., Canada. Russell Johnson. 36: 1011—1964
Approximation to the diffraction of sound by a circular aperture in a rigid wall of finite thickness. George P. Wilson and Walter W. Soroka. 36: 1023—1964
Coupling of sound and panel vibration below the critical frequency. P. W. Smith, Jr. 36: 1023—1964
Digital-computer method of measuring concert-hall acoustics. M. R. Schroeder. 36: 1011—1964
Evaluating the acoustics of a completed auditorium. David L. Klepper and B. G. Watters. 36: 1011—1964
Measurement of the transmission loss of finite depth of circular apertures. George P. Wilson. 36: 1023—1964
Ratio of "early" to "delayed" sound energy in halls. B. G. Watters, T. J. Schultz, and D. L. Klepper. 36: 1010—1964
Some further remarks on the Fitzroy multiaxial reverberation formula. Dariel Fitzroy. 36: 1010—1964
Subjective responses to nonexponential reverberation and delayed low frequencies in concert halls. B. S. Atal and M. R. Schroeder. 36: 1011—1964

Subtitles
Reverberation. Leo L. Beranek, F. R. Johnson, Theodore J. Schultz, and B. G. Watters. 36: 1255—1964
Reverberation. Paul S. Veneklasean and Jerry P. Christoff. 36: 906—1964

2.8 **Reverberation-Measuring Instruments. (See also 2.7 and 5.15.)**

Abstracts
Acoustical measurements in Philharmonic Hall (New York). G. M. Sessler, B. S. Atal, M. R. Schroeder, and J. E. West. 36: 1011—1964
Digital-computer method of measuring concert-hall acoustics. M. R. Schroeder. 36: 1011—1964

2.9 Sound Transmission Through Walls, Theory and Methods of Measurement of. (See also 2.10.)

Papers

European experience with sound-insulation requirements. Ove Brandt. **36**: 719—1964

Measurement sound-transmission loss in the field. Michael J. Kodaras and Robert A. Hansen. **36**: 565—1964

Abstracts

Criticism of the ISO impact-noise test. T. Mariner. **36**: 1024—1964

Effect of humidity on sound-transmission loss. Allen H. Shiner. **36**: 2013—1964

Impact-noise measurements for some floated-floor construction. H. W. Hehmann. **36**: 1024—1964

Objections and suggestions on impact and airborne-insulation measurements. G. L. Fuchs. **36**: 1024—1964

Sound-reduction closures. H. V. Munchhausen. **36**: 1024—1964

2.10 Sound-Insulating Structures. Values of Transmission Coefficients. (See also 7.6.)

Papers

European experience with sound-insulation requirements. Ove Brandt. **36**: 719—1964

Measurement sound-transmission loss in the field. Michael J. Kodaras and Robert A. Hansen. **36**: 565—1964

Sound insulation and the apartment dweller. T. D. Northwood. **36**: 725—1964

Symposium on Sound-Insulation Requirements for Multidwelling Buildings: Foreword. William A. Jack. **36**: 718—1964

Letters to the Editor

Impact sound under concrete-floating-on-wood-joist floor. Robert W. Young and R. S. Gales. **36**: 1212—1964

Abstracts

Sound-reduction closures. H. V. Munchhausen. **36**: 1024—1964

Patents

Acoustical panel. James H. Gildard and Richard D. Lemmerman. **36**: 1236—1964

Apparatus for and method of soundproof closure sealing. Jordan J. Baruch and Bill G. Watters. **36**: 240—1964

Apparatus for producing increased transmission loss. Bill G. Watters. **36**: 241—1964

High acoustic-energy transmission-loss panel and the like. Guenther Kurtze. **36**: 2432—1964

Noise suppression in electric power transformers. John Thomas Wilkins. **36**: 802—1964

Sound insulation sheet material. Benjamin W. Peebles and David H. Shuttleworth. **36**: 802—1964

Soundproofing panel structure. Bill G. Watters. **36**: 2431—1964

Structural building panel unit. George W. Meek. **36**: 632—1964

2.11 Vibration-Insulating Supports in Building Acoustics. (See also 5.21 and 12.3i.)

Papers

European experience with sound-insulation requirements. Ove Brandt. **36**: 719—1964

2.12 Damping of Panels

Abstracts

Acoustical behavior of segmented ceilings. Paul S. Veneklasen. **36**: 1010—1964

Patents

Apparatus for damping. Edward M. Kerwin, Jr. **36**: 2275, 2276—1964

Damping structure. Donald Ross. **36**: 2276—1964

Vibration-damped structure. Guenther Kurtze. **36**: 2276—1964

Vibration-damping structure. Guenther Kurtze. **36**: 2276—1964

2.14 Sound-Reinforcement Systems for Rooms

Papers

Improvement of acoustic-feedback stability by frequency shifting. M. R. Schroeder. **36**: 1718—1964

Abstracts

Sound reinforcing systems in reverberant churches. C. P. Boner. **36**: 1033(T)—1964

3 BOOKS, BIBLIOGRAPHIES, AND SURVEYS

A Course of Lectures on the Theory of Sound. S. N. Rschevkin. (Reviewed by L. Wallace Dean.) **36**: 1753—1964

Acoustic Behaviour of Animals. R.-G. Busnel, editor. (Reviewed by William J. Fry.) **36**: 1407—1964

Acoustique sous-marine. L. Guieysse and P. Sabathé. (Reviewed by V. M. Albers.) **36**: 981—1964

Audiology. Second edition. Hayes A. Newby. (Reviewed by Robert Goldstein.) **36**: 2251—1964

Dictionnaire générale d'acoustique et d'électroacoustique. Henry Piraux. (Reviewed by Austin R. Frey. **36**: 1752—1964

Dictionary of Hammond Organ Stops. Stevens Irwin. (Reviewed by Wilmer T. Bartholomew). **36**: 1234—1964

Dictionary of Pipe Organ Stops. Stevens Irwin. (Reviewed by W. C. Wayne, Jr.). **36**: 2429—1964

Die wissenschaftlichen Grundlagen der Raumakustik—Band II: Statistische Raumakustik. Lothar Cremer. (Reviewed by G. M. Sessler.) **36**: 1751—1964

Encyclopedia of Physics. Volume XI, Part II, Acoustics II. S. Flügge, editor. (Reviewed by Isadore Rudnick.) **36**: 800—1964

Engine Noise—Analysis and Control. C. H. Bradbury. (Reviewed by Cyril M. Harris.) **36**: 800—1964

Linear Circuit Analysis. Gerhard F. Paskusz and Bertram Bussell. (Reviewed by Harry F. Olson.) **36**: 981—1964

Marine Bio-Acoustics. William N. Tavolga, editor. (Reviewed by William J. Fry.) **36**: 2251—1964

Modern Developments in Audiology. J. Jerger, editor. (Reviewed by Lennart L. Kopra.) **36**: 2428—1964

Phonologic Studies of Quantity in Swedish. Based on material from Stockholm speakers. (Monografier utgivna av Stockholms kommunal-förvaltning 27.) Claes-Christian Elert. (Reviewed by Morris Halle.) **36**: 2429—1964

Physical Acoustics. Volume I, Part A: Methods and Devices. Warren P. Mason, editor. (Reviewed by Harry F. Olson. **36**: 1751—1964

Proceedings of the Eighth International Conference on Low Temperature Physics. R. O. Davies, editor. (Reviewed by Isadore Rudnick.) **36**: 1978—1964

Proceedings of the International School of Physics Enrico Fermi. Course XXVII: Dispersion and Absorption of Sound by Molecular Processes. D. Sette, Director. (Reviewed by Malcolm C. Henderson.) **36**: 1978—1964

Rechevoy Signal v Kibernetike i Svyazi (*The Speech Signal in Cybernetics and Communication*). M. A. Sapozhkov. (Reviewed by M. R. Schroeder.) **36**: 225—1964

Signal Detection and Recognition by Human Observers. John A. Swets, editor and arranger. (Reviewed by R. S. Gales.) **36**: 2428—1964

Sound and Ultrasound Waves in Air, Water, and Solid Bodies (*Zvukovye i ul'trazukovye volny v vozdukhe, vode, i tverdykh telakh*). V. A. Krasil'nikov. (Reviewed by Joseph L. Hunter.) **36**: 1608—1964

Ultrasonic Delay Lines. C. F. Brockelsby, J. S. Palfreeman, and R. W. Gibson. (Reviewed by David L. Arenberg.) **36**: 1234—1964

Use in Industry of Elasticity Measurements in Metals with the Help of Mechanical Vibrations. Notes on Applied Science No. 30, National Physical Laboratory. G. Bradfield. (Reviewed by Warren P. Mason.) **36**: 1233—1964

Vibrations and Waves. R. V. Sharman. (Reviewed by Carl E. Adams. **36**: 1233—1964

Waves and Oscillations. R. A. Waldron. (Reviewed by Malcolm C. Henderson.) **36**: 1752—1964

3.2 Bibliographies

Bibliography on oceanography. **36**: 977—1964

New Documentation Center for Ultrasonics seeks bibliographical information. **36**: 980—1964

References to contemporary papers on acoustics. Frederick E. White and Earl D. Schubert. **36**: 226, 614, 976, 1407, 1753, 2252—1964

3.3 Patents

Review of acoustical patents. Robert W. Young. **36**: 240, 404, 631, 802, 998, 1236, 1419, 1609, 1781, 1980, 2275, 2431—1964

4 PHYSIOLOGICAL AND PSYCHOLOGICAL ACOUSTICS

4.1 General, Unclassified

Papers

Echolocation: measurement of pitch versus distance for sounds reflected from a flat surface. Irvin G. Bassett and E. John Eastmond. **36**: 911—1964

Letters to the Editor

Effect of auditory deprivation. Stanley Batkin and Merle Ansberry. **36**: 598—1964

Abstracts

Sensation of hearing in electromagnetic fields. Clyde E. Ingalls. **36**: 1997—1964

Patents

Sleep-inducing sound-producing device. James K. Buckwalter. **36**: 1419—1964

Book Reviews

Audiology. Second edition. Hayes A. Newby. (Reviewed by Robert Goldstein.) **36**: 2251—1964

News

Extraordinary Congress of the International Society of Audiology. **36**: 1607—1964

Seventh International Congress of Audiology. **36**: 799—1964

Yosteen paper is new Beltone Translation. **36**: 978—1964

Errata

Annual Report of the Technical Committee on Psychological and Physiological Acoustics. **36**: 400—1964

4.2 Anatomy and Physiology of the Ear

Papers

Changes in the cochlear-microphonic potential due to resection of the efferent cochlear fibers. G. Rossi, G. Voena, G. Cortesina, and S. Buongiovanni. **36**: 1845—1964

Measurement of the displacements and nonlinearities of the guinea-pig tympanum. Lothar O. Hoeft, Eugene Ackerman, and Adam Anthony. **36**: 1836—1964

Model of neural inhibition in the mammalian cochlea. Gershon G. Furman and Lawrence S. Frishkopf. **36**: 2194—1964

Letters to the Editor

Responses to acoustic stimuli from single units in the eighth nerve of the green frog. Murray B. Sachs. **36**: 1956—1964

Abstracts

Auditory responses in certain lizards. Ernest A. Peterson. **36**: 1008—1964

Catechol amine activity in the inner ear: histochemical study by electron microscopy. David A. Hilding. **36**: 1016—1964

Comparison of the effects of cortitoxic antibiotics and intense sound on cochlear potentials in the guinea pig. Jean-Marie Aran and Joseph E. Hawkins, Jr. **36**: 1996—1964

"Cortical conditioning" in auditory evaluation. K. C. Pollock. **36**: 1997—1964

Cytoarchitectural changes in Corti's organ after kanamycin treatment and acoustic trauma. Joseph E. Hawkins, Jr., Valerie Beger, and Jean-Marie Aran. **36**: 1997—1964

Intensity-amplitude functions of wave activity in the superior-olivary complex of the cat. James C. Boudreau. **36**: 1996—1964

Neuronal periodicities to tones in feline auditory medulla. George Moushegian, Milton A. Whitcomb, and Allen Rupert. **36**: 1996—1964

Normal cytoarchitecture of Corti's organ by phase-contrast microscopy. Joseph E. Hawkins, Jr., and Valerie Beger. **36**: 1996—1964

Objective measurement of eustachian-tube function. R. F. Naunton, B. S. Elpern, and H. B. Perlman. 36: 1049—1964

Occlusion effect of the external-ear canal and its effect upon bone conduction. Juergen Tonndorf, Elliot C. Greenfield, and Roger S. Kaufman. 36: 1049—1964

Some acoustic relations of the slow cortical-evoked response. Hallowell Davis. 36: 1997—1964

Sound shadow cast by head and ears. J. D. Harris. 36: 1049—1964

Two-signal paradigm: whole-nerve action-potential responses. Donald C. Teas. 36: 1996—1964

Errata

Transfer function of the middle ear [J. Acoust. Soc. Am. 35, 1526–1534 (1963)]. Aage R. Møller. 36: 779—1964

4.2.1 Middle-Ear Mechanics

Papers

Dynamics of the acoustic reflex: phenomenological aspects. Peter J. Dallos. 36: 2175—1964

Measurement of the displacements and nonlinearities of the guinea-pig tympanum. Lothar O. Hoeft, Eugene Ackerman, and Adam Anthony. 36: 1836—1964

Abstracts

Amplitude and phase effects of middle-ear-muscle activity. Philip C. Nieder. 36: 2007—1964

Effects of moderate doses of curare on acoustic-reflex function. M. Loeb, R. P. Smith, and J. L. Fletcher. 36: 2007—1964

Evolution of vertebrate hearing. Willem A. van Bergeijk. 36: 1008—1964

Some properties of the acoustic reflex in man. David J. Lilly. 36: 2007—1964

Errata

Transfer function of the middle ear [J. Acoust. Soc. Am. 35, 1526–1534 (1963)]. Aage R. Møller. 36: 779—1964

4.2.2 Cochlear Mechanics

Papers

The ear as a frequency analyzer. R. Plomp. 36: 1628—1964

Abstracts

Comparison of the effects of cortitoxic antibiotics and intense sound on cochlear potentials in the guinea pig. Jean-Marie Aran and Joseph E. Hawkins, Jr. 36: 1996—1964

"Cortical conditioning" in auditory evaluation. K. C. Pollock. 36: 1997—1964

Cytoarchitectural changes in Corti's organ after kanamycin treatment and acoustic trauma. Joseph E. Hawkins, Jr., Valerie Beger, and Jean-Marie Aran. 36: 1997—1964

Determination of traveling-wave velocity in the human cochlea. Stanley Zerlin and G. Donald Causey. 36: 1992—1964

Normal cytoarchitecture of Corti's organ by phase-contrast microscopy. Joseph E. Hawkins, Jr., and Valerie Beger. 36: 1996—1964

Some acoustic relations of the slow cortical-evoked response. Hallowell Davis. 36: 1997—1964

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Response characteristics of some single units in the cochlear nucleus to tone-burst stimulation. Russell R. Pfeiffer. 36: 1017—1964

Vestibular response to sound: single-unit recording from the vestibular nerve in fenestrated deaf mice (Df/Df). D. O. Mikaelian. 36: 1016—1964

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Brain-stem neuronal coding of binaural and monaural tones. George Moushegian, Allen L. Rupert, and Milton A. Whitcomb. 36: 1018—1964
Catechol amine activity in the inner ear: histochemical study by electron microscopy. David A. Hilding. 36: 1016—1964
Excitation and inhibition of primary auditory neurons in the little brown bat. Lawrence S. Frishkopf. 36: 1016—1964
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4.6 Loudness, Threshold Determinations

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Sonic-pulse compression in bats and people: a comment. Willem A. van Bergeijk. **36**: 594—1964
Stimulus-oriented approach to detection. Lloyd A. Jeffress. **36**: 766—1964
Temporal integration as a function of frequency. Eugene C. Sheeley and Robert C. Bilger. **36**: 1850—1964

Letters to the Editor

Comments on "Sensory thresholds and response bias." M. M. Taylor. **36**: 599—1964
Intelligibility of frequency-modulated speech. W. H. Darnall and J. N. Birch. **36**: 1391—1964
Loudness and detectability scaling of bandpass-filtered short tones. C. Douglas Creelman. **36**: 966—1964

Abstracts

Auditory sensitivity of the chinchilla in quiet and in noise. James D. Miller. **36**: 2010—1964
Auditory sensitization and the method of interpolated trials. Charles S. Watson and Ben M. Clopton. **36**: 2009—1964
Binaural masking—the effects of interaural delay of the noise on the detection of tones. Lawrence R. Rabiner. **36**: 1992—1964
Detectability of the deletion of a tone from a tone-plus-noise background. Arthur I. Schulman and Rhoda R. Mitchell. **36**: 2009—1964
Detection of auditory signals in reproducible noise. Sheila M. Pfafflin, M. V. Mathews, and J. Kohut. **36**: 2009—1964
Detection of lateral movement under antiphasic masking conditions. Ervin R. Hafter, Walter T. Bourbon, Anne S. Blocker, and Ann Tucker. **36**: 1991—1964
Detection of Markovian sequences of signals. Morton P. Friedman and Edward C. Carterette. **36**: 1043—1964
Determination of traveling-wave velocity in the human cochlea. Stanley Zerlin and G. Donald Causey. **36**: 1992—1964
Effect of noise crosscorrelation for a narrow-band masking noise on the detection of a tonal signal. Ted L. Langford and Lloyd A. Jeffress. **36**: 1042—1964
Effect of phase difference between signal and masker on detection of a narrow-band noise signal. Mark E. Rilling and Lloyd A. Jeffress. **36**: 1991—1964
Effects of low-intensity noise on monitoring performance. Roger E. Kirk. **36**: 2010—1964
Evoked vocal response of the bullfrog. Robert R. Capranica. **36**: 2007—1964
Experiments in tactile speech perception. Robert L. Lucas. **36**: 1051—1964
Feedback and noise-signal detection at three performance levels. Richard A. Campbell. **36**: 1042—1964
Fundamental methodology for the evaluation of sound quality and some results of its application. T. Koshikawa and T. Nakayama. **36**: 2007—1964
General prediction relating yes-no and forced-choice results. David M. Green. **36**: 1042—1964
Heartprints and other body sounds. L. G. Kersta and M. L. Schwartz. **36**: 1050—1964
Information and complex-signal perception. Robert B. Chaney, Jr. **36**: 1043—1964
Investigation of the dynamic properties of the neural-quantal model. Joseph Markowitz. **36**: 2010—1964
Masking-level differences as a function of interaural disparities in intensity of signal and of noise. James P. Egan. **36**: 1992—1964
Masking-level differences for lateralization of a weak signal. James P. Egan and William Benson. **36**: 1992—1964
Measurement of individual stimuli in a signal-detection task. Charles S. Watson. **36**: 1042—1964
Musical character of tones as related to speed of tonal processing in the nervous system. Paul C. Boomsliter and Warren Creel. **36**: 2008—1964
Perceived order of tone pulses. Robert W. Peters. **36**: 1042—1964
Receiver-operating characteristics by rating scale for antiphasic stimulation. Charles S. Watson, Mark E. Rilling, and Walter T. Bourbon. **36**: 1991—1964
Speech-discrimination relations in normal and pathological ears. M. C. Schultz and Marilyn Berman. **36**: 1050—1964
Temporal perception of tone pulses. Robert W. Peters. **36**: 2009—1964
Theoretical and obtained ROC curves for antiphasic stimulation. Lloyd A. Jeffress, Charles S. Watson, Mark E. Rilling, and Walter T. Bourbon. **36**: 1991—1964
Threshold shifts for continuous or pulsed tones produced by contralateral steady or pulsed noise. Donald D. Dirks and Carolyn Malmquist. **36**: 1992—1964
Transmission of directional perception. B. B. Bauer, A. DiMattia, and A. Rosenheck. **36**: 1041—1964
Uncertain signal detection with contralateral cues. Robert D. Sorkin. **36**: 1992—1964

Patents

Aural detection system. James W. Caspers. **36**: 1236—1964

Book Reviews

Signal Detection and Recognition by Human Observers. John A. Swets, editor and arranger. (Reviewed by R. S. Gales.) **36**: 2428—1964

Errata

Bone-conduction thresholds for sonic and ultrasonic frequencies [J. Acoust. Soc. Am. **35**, 1738–1743 (1963)]. John F. Corso. **36**: 1391—1964

5 ACOUSTICAL INSTRUMENTS AND APPARATUS. (See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3z, 13.11, 13.11n, and 13.11t).

5.1 General, Unclassified

Papers

Acoustic impedance in a rigid-walled cylindrical sound channel terminated at both ends with active transducers. Louis G. Beatty. **36**: 1081—1964

Patents
Audio signal-responsive device. Frederick L. Way. **36**: 1782—1964
Device for detecting and repeating selectively sound signals emitted by overtaking vehicles. Leonello Capalozza. **36**: 1781—1964
Horn construction. Weichien Chow and William H. Fisher. **36**: 998—1964
Pulse-echo gauging system. Miguel C. Junger. **36**: 1237—1964
Sonic pin detection means. Sampson Isenberg, Robert J. Moon, and Albert E. Shaw. **36**: 1237—1964
Sound actuated control system for ball mill and the like. Vernie W. Marcyes and Thomas L. Granger. **36**: 998—1964
Sound emitting device. Charles R. Luchsinger. **36**: 999—1964

Book Reviews
Linear Circuit Analysis. Gerhard F. Paskusz and Bertram Russell. (Reviewed by Harry F. Olson.) **36**: 981—1964

5.2 Amplifiers and Attenuators

Letters to the Editor
Tuned audio amplifier with controllable resonant frequency provided by modification of a manufactured audio oscillator. Herbert M. Neustadt. **36**: 2234—1964

Patents
Amplifier control circuit. Daniel R. Graef. **36**: 2432—1964
Amplifier interconnecting circuit. Edward S. Seeley. **36**: 1980—1964
Background noise compensated recording player. Harold O. Schwartz and Harry B. Hammill. **36**: 2432—1964
Capacitive source signal generators. Arnold L. Seligson. **36**: 1237—1964
Stereo amplifier apparatus and the like. H. H. Scott. **36**: 803—1964

5.3 Acoustic-Impedance Measurement. (See also 11.5 and 12.3z.)

Papers
Acoustical-impedance characteristics of sintered stainless steel. John E. Anderson. **36**: 811—1964

Patents
Acoustic transformer. Stephen Yando. **36**: 999—1964

5.4 Analyzers and Filters, Acoustic and Electric. Oscillographs. Acoustic Delay Lines and Resonators. (See also 5.15 and 12.3f.)

Papers
Digital compressed-time correlators and matched filters for active sonar. W. B. Allen and E. C. Westerfield. **36**: 121—1964
Effect of pressure reduction and temperature variation on the performance of a double form of Helmholtz resonator. A. R. Ingles. **36**: 816—1964
Excitation of a circular cylindrical cavity by a circular waveguide. C. Bjerke and J. Van Bladel. **36**: 1095—1964
Excitation of a resonant cavity by ducts of small cross-sectional dimensions. J. Van Bladel. **36**: 1090—1964
Experimental 600-ft electrosonic delay line. M. G. Kaufman. **36**: 1861—1964
Turning-point peculiarities in the near-resonant response of slightly tapered membrane strips. J. N. Goodier and F. B. Fuller. **36**: 1491—1964

Abstracts
Determination of bandpass-filter corrections. J. R. Engstrom. **36**: 2015—1964
Function filtering. E. L. Cordell and R. J. Beason. **36**: 2016—1964
Taut-wire delay lines. George H. Ashley. **36**: 1034—1964

Subtitles
Resonators. Richard H. Lyon and Ewald Eichler. **36**: 1346—1964

Patents
Acoustic solid delay lines. Hugh A. Dell and Michael A. Snelling. **36**: 999—1964
Adjustable piezoelectric wave filter having two resonance peaks. Victor Rodek. **36**: 999—1964
Branching filter. Stephen W. Tehon. **36**: 1238—1964
Electromechanical filter. Franz Schöfer. **36**: 1237—1964
Electromechanical filter with piezoelectric drive. Werner Poschenrieder. **36**: 1237—1964
Filter-transformers. Donald P. Faulk and William J. Gerber. **36**: 1237—1964
Housing for ceramic ladder filter. Daniel R. Curran, William J. Gerber, and Antonio Lungo. **36**: 404—1964
Magnetostrictive filter apparatus having multiple magnetostrictive rods stacked in parallel. George J. Foundas. **36**: 803—1964
Mechanical filter. Tetsuro Tanaka and Shigeru Miura. **36**: 405—1964
Mechanical frequency filters. Manfred Börner. **36**: 1237—1964
Piezoelectric band pass filter. Oskar E. Mattiat. **36**: 632—1964
Resonance reed frequency sensitive control apparatus. Frank H. Inderwiesen. **36**: 1238—1964
Spectrum analyzer. Robert R. Galbreath. **36**: 1782—1964

Book Reviews
Ultrasonic Delay Lines. C. F. Brockelsby, J. S. Palfreeman, and R. W. Gibson. (Reviewed by David L. Arenberg.) **36**: 1234—1964

5.5 Audiometers. (See also 4.4 and 4.5.)

Papers
Calibration of audiometers. Alex E. Martens. **36**: 775—1964
International audiometric zero. Hallowell Davis and Fred Kranz. **36**: 1450—1964

Letters to the Editor
Comments on the effect of circumaural earphones on auditory threshold. Tom W. Tillman and Keith D. Gish. **36**: 969—1964
Recording the waveforms of periodic acoustic signals at levels near and below 0.0002 μ bar. James D. Miller, A. Maynard Engebretson, and Peter B. Weston. **36**: 1591—1964

Abstracts
Critical evaluation of SAL audiometry. James Jerger and Susan Wood. **36**: 2007—1964

Book Reviews

Audiology. Second edition. Hayes A. Newby. (Reviewed by Robert Goldstein.) **36**: 2251—1964

Errata

Recording the waveforms of periodic acoustic signals at levels near and below 0.0002 μ bar [J. Acoust. Soc. Am. **36**, 1591–1593 (1964)]. James D. Miller, A. Maynard Engebretson, and Peter B. Weston. **36**: 2234—1964

5.7 Ear Protectors and Earplugs

Abstracts

Low-frequency attenuation of rigid-frame ear defenders. George J. Thiessen. **36**: 2006—1964

5.8 Loudspeakers, Horns, Measurements. Practical Sound Sources. (See also 5.13, 5.17, and 5.18.)

Papers

Calibration of piston transducers at marginal test distances. Gerald A. Sabin. **36**: 168—1964

Oscillating pressures within a cylindrical chamber that has a circular piston in one end wall. Donald L. Lansing, Charles E. Watkins, and George T. Kantarges. **36**: 2222—1964

Underwater-sound-transducer calibration from near-field data. W. James Trott. **36**: 1557—1964

Abstracts

Improved broad-band random siren. W. P. Rader. **36**: 2012—1964

Large-area pneumatically driven bass reproducer. Stanley R. Rich. **36**: 1014—1964

Note on underwater horns. D. Muster and A. Christensen. **36**: 2010—1964

Performance characteristics of a 160 000-W acoustic siren. Robert C. Polly. **36**: 2011—1964

Relative effects of normal-mode structure of loudspeakers and rooms on reproduction of sound. Amar G. Bose. **36**: 2011—1964

Unfinished business with loudspeakers. B. N. Locanthi. **36**: 1019(T)—1964

Subtitles

Sound sources. Robert S. Soloff. **36**: 962—1964

Patents

Acoustical enclosure and low frequency sound amplifier for a loudspeaker. George H. Taylor, Jr. **36**: 243—1964

Acoustical loud speakers. Alex Robbins. **36**: 1420—1964

Acoustic apparatus. Sylvester Walczak. **36**: 1238—1964

Air modulator acoustic generator. Donald C. Skilling. **36**: 1782—1964

Chiming timepiece with sound radiating diaphragm coupled with the sound producer. Helmut Junghans and Paul Jahn. **36**: 1782—1964

Diaphragm for electro acoustic transducer. Donald A. Barlow. **36**: 1000—1964

Electrical sound reproducing devices. Vivian C. Gray. **36**: 242—1964

Electro-acoustic transducer. Auguste Louis Marie Antoine Rouy. **36**: 1609—1964

Electrodynamic conical loudspeaker. Wytze Hofman. **36**: 1782—1964

Electrodynamic device. Derk Kleis, Gerrit Schenkel, and Adrianus Bierens. **36**: 242—1964

Electrodynamic loudspeaker. Theodore R. Scholl. **36**: 1000—1964

Electro mechanical audio tone generator. Ruel E. Welch. **36**: 1238—1964

Frequency independent directional condenser microphone. Rudolf Görike. **36**: 242—1964

High-fidelity loudspeaker system. Joseph E. Whitcas. **36**: 242—1964

High fidelity sound reproducer. Warren R. Wood. **36**: 1001—1964

Horn device. Keiichi Shintaku. **36**: 1782—1964

Integral loud speaker baffle. Josef J. Hammes. **36**: 1000—1964

Loudspeaker. Carroll R. Miner. **36**: 1000—1964

Loud-speaker. Marlin L. Price. **36**: 1000—1964

Loudspeaker. Sylvester Walczak. **36**: 242—1964

Loudspeaker. Maurice W. Widener. **36**: 241—1964

Loud speaker assembly. Chauncey R. Evans. **36**: 243—1964

Loudspeaker baffle assembly. Pellegrino J. Morgillo. **36**: 242—1964

Loud speaker baffle for floors. Jose G. Valldeperas. **36**: 999—1964

Loud speaker construction. Joseph A. Hassan. **36**: 243—1964

Loudspeaker construction. Jean I. Montagu. **36**: 1000—1964

Loud-speaker enclosure. Santos J. Mares. **36**: 1782—1964

Loudspeaker enclosures. Alfred H. Roberts. **36**: 1000—1964

Loudspeaker resonator. Antony Z. Doschek. **36**: 243—1964

Loudspeaker system. Robert J. Pawlowski. **36**: 1609—1964

Low frequency loudspeaker. Siegfried J. Zuerker. **36**: 243—1964

Magnetic field structure for loudspeakers. David E. Laux. **36**: 999—1964

Magnetic field structure for transducers and method of constructing same. Anthony A. Sariti. **36**: 241—1964

Metallic diaphragm for electrodynamic loudspeakers. Rudolf T. Bozak. **36**: 242—1964

Microphone unit. John Irick. **36**: 803—1964

Piezoelectric electromechanical transducer. Robert R. Ten Eyck. **36**: 242—1964

Resonant, acoustical booster with air damping. Eugene E. Sutton. **36**: 1420—1964

Sound reproducing system. Frank M. Freimann and Daniel R. Graef. **36**: 999—1964

Speaker enclosure. William S. Bateman, Jr. **36**: 241—1964

Speaker enclosure. Charles S. Brown. **36**: 243—1964

Speaker systems and sound chambers therefor. Richard M. Smith. **36**: 1001—1964

Speaker unit for drive-in theater. Oscar R. May. **36**: 241—1964

Tone cabinets. Joseph H. Hearne. **36**: 242—1964

5.9 Microphones. Microphone-Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)

Papers

Calibration of piston transducers at marginal test distances. Gerald A. Sabin. **36**: 168—1964

Coupler reciprocity system for hydrophone calibration at high pressures. G. W. McMahon. 36: 2311—1964

Electrokinetic, acoustic pressure transducer. Joseph L. Collins and G. E. Ellis. 36: 1858—1964

Probe-tube microphones. R. W. Leonard. 36: 1867—1964

Solion infrasonic microphone. Joseph L. Collins, William C. Richie, and G. Earle English. 36: 1283—1964

Underwater-sound-transducer calibration from near-field data. W. James Trott. 36: 1557—1964

Letters to the Editor

Farfield radiation pattern of a noise source from nearfield measurements. Horace G. Ferris. 36: 1597—1964

Free-field correction for condenser microphones. Walter Koidan and David S. Siegel. 36: 2233—1964

Abstracts

Calibration of close talking microphone. M. Copel. 36: 1019(T)—1964

In situ calibration of microphones. John J. Van Houten. 36: 1014—1964

Measurements of electromechanical coupling in condenser microphones. Walter Koidan. 36: 1013—1964

Problems in microphone absolute calibration. W. Koidan. 36: 1019(T)—1964

Patents

Ballistic missile shock wave detector. John Alex Ingvar Öhlund. 36: 803—1964

Electro-mechanical transducer. Elmer V. Carlson. 36: 1001—1964

High sensitivity piezoelectric microphone. Frank Swinehart and Robert J. Dobias. 36: 243—1964

Mouthpiece microphone unit. Fred P. Beguin. 36: 1609—1964

Testing microphones. Frank A. Comerci, Michel Copel, and Eliseo V. Oliveros. 36: 243—1964

Ultra-sonic microphone. Alpha M. Wiggins. 36: 803—1964

Unidirectional microphone. Wayne A. Beaverson and Robert C. Ramsey. 36: 243—1964

Unidirectional microphone. Alpha M. Wiggins. 36: 1001—1964

Waterproof electrostrictive inertial type microphone. Donald P. Ward. 36: 243—1964

5.10 Navigational Instruments Using Air Sound. Altitude-Measuring Instruments. Sound Ranging. (For Underwater Ranging see 13.11n.)

Patents

Acoustic probe. Georg E. Knausenberger. 36: 1238—1964

Coupling liquid apparatus for ultrasonic testing. Ivan L. Joy. 36: 2277—1964

Mounting means for electro-ultrasonic transducers. John H. Auer, Jr., Norman A. Bolton, Hugh C. Kendall, and Robert A. Hagen. 36: 1002—1964

Pulsed ultrasonic detector. John H. Auer, Jr. 36: 1001—1964

Sonic altimeter. James A. Wippert. 36: 632—1964

Sonic signaling device. William K. Fortman and Norman C. Pickering. 36: 1783—1964

Sonic space alarm. Kenneth H. Schmidt. 36: 1002—1964

Sound actuated detection and alarm system. Howard M. Larrick and Walter R. Brosch. 36: 1002—1964

Ultrasonic multistation or gang welding. Claus Kleesattel, Arthur Kuris, and Lewis Balamuth. 36: 2277—1964

Ultrasonic vehicle detection system. Morton A. Polster. 36: 1002 (2 abstracts)—1964

Ultrasonic vehicle detector system. George Vande Sande. 36: 1002—1964

5.11 Oscillators, Electrical and Mechanical

Letters to the Editor

Tuned audio amplifier with controllable resonant frequency provided by modification of a manufactured audio oscillator. Herbert M. Neustadt. 36: 2234—1964

Patents

Power supply for an electro-mechanical vibrating transducer. Warren C. Fry. 36: 2277—1964

Transducer ultrasonic power supply. Chuck F. Der. 36: 2277—1964

5.13 Sound-Reproducing Systems, Including Public-Address Systems, Stereophonic Reproduction

Papers

Improvement of acoustic-feedback stability by frequency shifting. M. R. Schroeder. 36: 1718—1964

Patents

Apparatus for determining the polarities of stereophonic channel connections at any selected point. Donald G. Fink. 36: 405—1964

Automatic level-adjustment circuit. Edward S. Seeley. 36: 2433—1964

Cabinet for sound reproducing equipment. Robert S. Huff and Joseph Horzick. 36: 405—1964

Multiplex transmission and reception system for stereophonic material. Herbert Fremont and Harold N. Parker. 36: 804—1964

Portable sound reproducing apparatus. Jarl A. Johnson. 36: 1002—1964

Sound reproduction system. Ivan Bekey. 36: 2432—1964

Sound reproduction system. Roelof Vermeulen and Derk Kleis. 36: 1238—1964

Sound system. Richard H. Ranger. 36: 2432—1964

Stereophonic amplifier and loudspeaker system. Werner Kausch. 36: 1002—1964

Stereophonic background music and public address system. R. H. Janowsky. 36: 1783—1964

Stereophonic sound. William F. Hornyak. 36: 1002—1964

Stereophonic sound collecting device. Derk Kleis and Johannes Snoek. 36: 405—1964

Stereophonic sound distributor. Richard H. Ranger. 36: 405—1964

Stereophonic sound for drive-in theatres. R. H. Heacock. 36: 1783—1964

Stereophonic sound transmission and reproduction. Jerry B. Minter, 2nd. 36: 803—1964

Stereophonic to binaural conversion apparatus. Benjamin B. Bauer. 36: 405—1964

5.15 Sound-Level Meters. Level Recorders. Sound-Pressure Measurement. (See also 5.4.)

Papers

Oscillating pressures within a cylindrical chamber that has a circular piston in one end wall. Donald L. Lansing, Charles E. Watkins, and George T. Kantarges. **36**: 2222—1964

Patents

Logarithmic translating circuit. Theodore A. Rich. **36**: 1783—1964

Multichannel logarithmic integrating computer. Alan H. Rich. **36**: 1239—1964

5.16 Sound Recording and Reproducing. General

Letters to the Editor

Permanently destaticized high-fidelity records. B. D. Brummet and Sol S. Jaffe. **36**: 1590—1964

Recording the waveforms of periodic acoustic signals at levels near and below 0.0002 μ bar. James D. Miller, A. Maynard Engebretson, and Peter B. Weston. **36**: 1591—1964

Sonograph recording techniques. Peter Carmeci and Richard Jorgensen. **36**: 1959—1964

Abstracts

Relative effects of normal-mode structure of loudspeakers and rooms on reproduction of sound. Amar G. Bose. **36**: 2011—1964

Patents

Audiovisual projection system. Panayotis C. Dimitracopoulos and Constantine D. Pezaris. **36**: 1610—1964

Audio-visual projector for sound-on-slide tablets. Panayotis C. Dimitracopoulos and Constantine D. Pezaris. **36**: 1610—1964

Automatic volume control system for a dictating machine and the like. Douglas E. Taylor and William F. Mitchell. **36**: 1980—1964

Stereo pickup device. Ken Suzuki and Shoji Kikuchi. **36**: 1981—1964

Support for the recording of sounds and images and apparatus for use thereof. Serge Léon Louis Cailliot. **36**: 1980—1964

System for recording and reproducing electric organ music. Donald J. Leslie. **36**: 244—1964

Errata

Recording the waveforms of periodic acoustic signals at levels near and below 0.0002 μ [J. Acoust. Soc. Am. **36**, 1591-1593 (1964)]. James D. Miller, A. Maynard Engebretson, and Peter B. Weston. **36**: 2234—1964

5.16d Mechanical Recording and Reproducing

Patents

Bi-plex stereophonic recording and reproducing system. Adrian L. DeRosa. **36**: 2433—1964

Electromechanical transducer. Arthur R. Kopp. **36**: 1003—1964

Electro-mechanical transducer with negative feedback for the recording and reproduction of sound waves. Georg Neumann. **36**: 2433—1964

Friction drive release for phonograph turntables. Emmor V. Schneider. **36**: 804—1964

Magnetic stereophonic phonograph cartridge. Peter E. Pritchard and Roy Dally. **36**: 1239—1964

Method and means for stamping gramophone records. Robert Albert Renoux. **36**: 804—1964

Monophonic–stereophonic phonograph cartridge. David E. Laux. **36**: 805—1964

Mounting for phonograph tone arms. William R. Hawkins. **36**: 1420—1964

Multi-groove stereophonic sound recording and reproducing system. Harry F. Olson. **36**: 1239—1964

Phonograph arm. Jacob Rabinow. **36**: 2433—1964

Phonograph arms for recording apparatus. Marcel Jules Hélène Staar. **36**: 804—1964

Phonograph tone arm. George W. Fabel and Roy Dally. **36**: 804—1964

Phonograph tone arm. Robert J. Hammond. **36**: 1610—1964

Phonograph turntable. Elmer Fred Macks and John A. Funk. **36**: 805—1964

Pick-up for use with record players. Jan Cornelis Willem Dragt. **36**: 1003—1964

Record player using light transducer and servo. Jacob Rabinow and Arthur O. Morse. **36**: 2434—1964

Record table drives for sound reproduction machines. John L. Berggren. **36**: 1003—1964

Scanning arm for scanning records having stereophonically associated signals recorded in one groove. Maximilian Scheerbarth. **36**: 1003—1964

Stereophonic phonograph pickup. Jay L. Johnson. **36**: 1004—1964

Stereophonic phonograph pickup. John A. Tourtellot. **36**: 1003—1964

Stereophonic pick-up. Machiel de Vries. **36**: 2433, 2434—1964

Stereo transducer. Hubertus Jan Smits. **36**: 1003—1964

Tone-arm for a play-back sound reproducer. James E. Godfrey and Eugene Lesserson. **36**: 1002—1964

Turntable for record player. Robert van Antwerp. **36**: 1610—1964

5.16f Photographic Recording and Reproducing

Patents

Apparatus for optically recording a sound record area on a strip of film. John A. Maurer. **36**: 632—1964

5.16m Magnetic Recording and Reproducing

Patents

Apparatus for carrying out time, work and motion studies. Friedrich Lorenz. **36**: 1423—1964

Apparatus for printing magnetic sound record provided with a device for the inspection of the intensity of printed magnetic sound record. Yasushi Hoshino, Mamoru Namikawa, and Shigezo Tochihara. **36**: 1240—1964

Apparatus for recording and/or reproducing high frequency signals. James P. Fay. **36**: 1422—1964

Automatic gain control circuit utilizing variable capacitance. Glenn C. Bacon. **36**: 1239—1964

Automatic synchronous clutch for magnetic recorder–reproducer equipment. William H. Lyon. **36**: 1421—1964

Boundary displacement magnetic recording apparatus. Howard L. Daniels. **36**: 1423—1964

Carrying handle actuated recorder. Joseph M. Segel. **36**: 1423—1964

Compensation network. Donald L. Drukey. 36: 1004—1964
Device for selectively erasing two or more adjacent magnetic tracks of a magnetic tape. Cornelis de Koning. 36: 247—1964
Editing system for electronic recordings. Joseph Roizen. 36: 1241—1964
Electrical apparatus for certifying magnetic tape. Henry W. Schrimpf. 36: 246—1964
Electromagnetic head. Alfred Dale Scarbrough. 36: 1421—1964
Electromagnetic transducer head housing and assembly. Wesley Tannenbaum, Joseph F. Cleary, and Leonard T. Ohlson. 36: 1421—1964
Flux diverter. Leonard D. Barry. 36: 1422—1964
Improved drive for sound recording and reproducing apparatus. Barton A. Proctor. 36: 1423—1964
Indexing system for magnetic recorders. Fred O. Holladay and Richard Kobler. 36: 1421—1964
Magnetic head and method of operation. Howard Norris Fawcett. 36: 1421—1964
Magnetic head assembly. Kazuyuki Shirakura. 36: 1242—1964
Magnetic head construction. Michael Rettinger. 36: 245—1964
Magnetic recorder. Hiroshi Iwamura. 36: 244—1964
Magnetic recording. Franciscus T. Backers and Johannes H. Wessels. 36: 246—1964
Magnetic recording and reproducing. Robert E. Morey. 36: 245—1964
Magnetic recording and reproducing apparatus. Dallas R. Andrews. 36: 246—1964
Magnetic recording and reproducing head. Edward C. Fox. 36: 1424—1964
Magnetic recording and reproducing means. Vladimir K. Zworykin and Paul K. Weimer. 36: 1240—1964
Magnetic recording and reproducing system. Loren L. Ryder. 36: 1424—1964
Magnetic recording apparatus. Peter C. Goldmark. 36: 245—1964
Magnetic recording heads. Laszlo Namenyi-Katz. 36: 246—1964
Magnetic recording means. Norman C. Bremer. 36: 1421—1964
Magnetic recording method and apparatus. William A. Wootten. 36: 1422—1964
Magnetic recording system. Carl Lauxen, Martin Lewis Levene, and David L. Nettleton. 36: 1424—1964
Magnetic sound reproduction. Barton A. Proctor. 36: 1241—1964
Magnetic tape channel-loading dictating machine. William H. Lyon. 36: 246—1964
Magnetic tape recorder. Adrien Zahner. 36: 1424—1964
Magnetic tape reproducing system. Stewart L. Smith. 36: 1423—1964
Magnetic transcriber. Laszlo J. Javorik. 36: 1240—1964
Magnetic transducer. Edward A. Quade. 36: 1420—1964
Magnetic transducer. Edward J. Supernowicz. 36: 1424—1964
Magnetic transducer device. Erika Erna Kaspaul. 36: 1241—1964
Magnetic transducer head. Marvin Camras. 36: 1240—1964
Magnetic transducer with sequentially scanning heads. Ikuro Moriya. 36: 1423—1964
Magnetostrictive transducer for the recording and reproducing of magnetic information. Wayne R. Johnson. 36: 245—1964
Means and techniques for recording and reproducing sound. Robert E. Youell. 36: 1239—1964
Method and means for recording and reproducing magnetic signals. Christian-Friedrich Wolf and Walter Engel. 36: 1241—1964
Method of and protection for signal reproduction. Joseph S. Whiteford. 36: 1241—1964
Method of manufacturing a magnetic head having a glass spacer. Simon Duinker and Jules Bos. 36: 1424—1964
Method of recording and/or reproducing high-frequency signals. Franciscus Theodorus Backers and Johannes Hendrik Wessels. 36: 245—1964
Pack for magnetic sound record sheets. Yasushi Hoshino, Mamoru Namikawa, and Shigezo Tochihara. 36: 1422—1964
Read head for magnetic surface recording. Harry E. Criner. 36: 1424—1964
Readout on demand tape storage device. John M. Stroud, John C. Webster, Fred A. Steiner, and Stanley H. Sessions. 36: 244—1964
Recording and/or reproducing apparatus and head carriage therefor. Dwight W. Brede. 36: 1421—1964
Rotatable magnetic disc movable toward and from disc carrying transducer. Norman E. Marcum and William A. Farrand. 36: 1421—1964
Rotatable magnetic transducer. Walter S. Buslik. 36: 1420—1964
Rotating head switcher. Charles E. Anderson and Nikolai Lasarev. 36: 1242—1964
Scanner. George Joseph Trapp. 36: 1424—1964
System for magnetic recording. Robert H. Berkshire. 36: 1420—1964
Tape feeding means. Theodore C. Gams and Paul J. Kiefer, Jr. 36: 1421—1964
Tape recorder. Leonard Dodge Barry. 36: 1423—1964
Tape recorder. Benjamin B. Kleinerman. 36: 246—1964
Tape recorder. Leonid Sinkewitsch. 36: 1241—1964
Tape recording and/or reproducing system and method. Harold V. Clark and John F. Varnell, Jr. 36: 247—1964
Tape recording and reproducing apparatus. Norman Lane. 36: 246—1964
Transducer assembly. Russell D. Ricketts. 36: 1422—1964
Transducer assembly for magnetic recorders. A. J. Pankratz and Robert M. Shoemaker. 36: 1423—1964
Transducer for magnetic recordings. Friedrich Kuhrt, Walter Engel, and Christian-Friedrich Wolf. 36: 1422—1964
Transducer system for magnetic signals. Friedrich Kuhrt. 36: 244—1964
Transducing system. Wayne R. Johnson. 36: 245, 1421—1964
Tuning mechanism for dictating machine. Richard E. Trost. 36: 1420—1964
Two channel phase modulation. Louis B. McManis. 36: 244—1964
Variable message length automatic recorder announcer. Edward S. Peterson. 36: 1239—1964
Vehicle actuated controller for sound reproducer. Malcolm B. Beattie. 36: 1239—1964

5.17 Telephones, Telephone Earphones. (See also 5.13.) Intercommunication Systems

Abstracts

Study of noise and other factors in conference telephony. Mark B. Gardner. **36**: 1036—1964

Patents

Audio output table. Stanley Eugene Goold. **36**: 1424—1964

Automatic sound control. William B. Wadsworth. **36**: 805—1964

Communication systems. Thomas F. Carter. **36**: 1784—1964

Earphones. Edgar A. G. Shaw and George J. Thiessen. **36**: 1784—1964

Electromagnetic receiver. Toshio Hayasaka, Kenro Masuzawa, Ryozo Araki, and Kiyoshi Tajima. **36**: 633—1964

Electromagnetic sounders or ringers for giving audible calling signals. Ronald Ernest Charles Brown. **36**: 1784—1964

Intercom for automobiles. William J. De Laney. **36**: 1004—1964

Intercommunication system. John Grant. **36**: 805—1964

Intercommunication system. Robert G. Metzner and Arthur J. Grolitzer. **36**: 1004—1964

Proximity operated loudspeaking telephone. Robert V. Burns. **36**: 1004—1964

Receiver amplifier. Earl R. Sanders. **36**: 2277—1964

Underwater telephone. Clark A. Willick. **36**: 2278—1964

5.18 Transducing Principles, Structures and Materials, General. (See also 5.8, 5.9, 5.17, 10.3, 12.3p, 13.7, and 13.11t.)

Papers

Coupling to hypersonic waves. W. H. Haydl, K. Blötekjaer, and C. F. Quate. **36**: 1670—1964

Diffraction constants of acoustic transducers. T. A. Henriquez. **36**: 267—1964

Electrokinetic, acoustic pressure transducer. Joseph L. Collins and G. E. Ellis. **36**: 1858—1964

Feedback vibrometer. Lawrence Fleming. **36**: 1645—1964

Mutual radiation impedance of square and rectangular pistons in a rigid infinite baffle. Elizabeth M. Arase. **36**: 1521—1964

Performance of open ferroelectric ceramic cylinders in underwater transducers. G. W. McMahon. **36**: 528—1964

Reciprocity calibration of a standard hydrophone at 16 000 psi. Claude C. Sims and T. A. Henriquez. **36**: 1704—1964

Solion infrasonic microphone. Joseph L. Collins, William C. Richie, and G. Earle English. **36**: 1283—1964

Strain amplitude of Mc/sec ultrasonic waves in solids. G. A. Alers and P. A. Fleury. **36**: 1297—1964

Torsionally resonant amplitude transformers for high magnification. E. Eisner. **36**: 1—1964

Underwater-sound-transducer calibration from near-field data. W. James Trott. **36**: 1557—1964

Variance of the bearing angle of a discrete linear-difference array in a random transmission medium. Gary E. Lord. **36**: 1545—1964

Letters to the Editor

Calculation of coupling effects in Pritchard's array. Ewald Eichler. **36**: 1393—1964

Transducer-thickness effects in measuring ultrasonic velocities. E. W. Kammer. **36**: 1594—1964

Abstracts

Acoustic reflection and transmission properties of several transducer window materials. G. R. Barnard, J. L. Bardin, and J. W. Whiteley. **36**: 2011—1964

Broad-band excitation of microwave ultrasonic waves. R. B. Hemphill and R. N. Claytor. **36**: 2011—1964

Characteristics of noise generated by an electropneumatic transducer. John J. Van Houten and Walter T. Fiala. **36**: 1036—1964

Development of a missile-impact acoustic transponder. George E. Pasonski. **36**: 2016—1964

Dumiload: a variable-radiation-impedance simulator. Dean A. Hanna. **36**: 1012—1964

Electroacoustic transducer efficiency of R, L, and C components. Knut S. Nordby and William W. Lang. **36**: 2013—1964

Experimental and theoretical investigation of the sound field of a corrugated acoustic waveguide. J. D. Jones. **36**: 2010—1964

General definition of transducer coupling coefficient and some applications. A. Mohammed. **36**: 1012—1964

Pertinent acoustic characteristics of cylindrical wooden tanks. R. A. DeChico and R. C. Lewis. **36**: 2017—1964

Response characteristics of polarized cathode solion linear acoustic transducers. C. W. Larkam and G. Earle English. **36**: 2010—1964

Solion linear acoustic detectors of the polarized cathode type. C. W. Larkam. **36**: 1013—1964

Sound isolation for transducer-threshold-noise evaluation. John G. Powell. **36**: 1013—1964

Techniques for automatic recording of impedance and admittance of transducers under high power. Abraham I. Dranetz. **36**: 1013—1964

The decibel, measure of transducer performance. R. W. Young. **36**: 1019(T)—1964

Ultrasonic image converter of high-conductance scanning type. W. R. Turner. **36**: 2016—1964

Subtitles

Transducers. V. A. Chobotov and R. C. Binder. **36**: 66—1964

Patents

Acoustic stethoscope. Ralph Cefaly. **36**: 805—1964

Acoustic transducers. Wilfred Roth. **36**: 633—1964

Activation of ferroelectric elements. Ray S. Alleman, Jack D. Baker, William A. Daniel, and Ralph C. Struthers. **36**: 805—1964

Autopolarization of electrostrictive transducers. Stanley R. Rich. **36**: 633—1964

Capacitor acousto-electric transducer and method of making the same. Mark Schindler. **36**: 634—1964

Composite piezoelectric element. Michael Tarasevich. **36**: 1981—1964

Electrical devices. Edward S. Rogers, Jr. **36**: 1005—1964

Electrical transducer. Charles W. Burley. **36**: 1981—1964

Electromagnetic electroacoustic transducer. Rudolf Görike. **36**: 1005—1964

Hollow conical electromechanical transducer. Wilbur T. Harris. 36: 633—1964
Hollow conical electromechanical transducer in sealed housing. Wilbur T. Harris. 36: 633—1964
Low frequency resonant transducers. Miguel C. Junger. 36: 806—1964
Medical transducer for detecting arterial pulsations. Peter Smith. 36: 1981—1964
Method and apparatus for transmitting sonic vibrations into liquid bodies. Albert G. Bodine, Jr. 36: 1610—1964
Piezoelectric devices utilizing cadmium sulfide. Andrew R. Hutson. 36: 247—1964
Quartz piezoelectric element. Leland T. Sogn. 36: 633—1964
Sonic vibrator. Wilfred E. Thibodeau. 36: 1004—1964
Transducer hearing aid coupling. John A. Victoreen. 36: 2278—1964
Ultrasonic vibration control of thermionic devices. John T. Maynard. 36: 1784—1964

News
Ceramic materials for vibration transducers. 36: 2420—1964
NBS monograph on transducer calibration. 36: 1224—1964

5.18d Electrodynamic Transducers

Abstracts
Eddy current high-frequency reproduced. Stanley R. Rich. 36: 1013—1964
Flat, spiral, direct radiator transducer. Stanley R. Rich. 36: 1013—1964

Patents
Apparatus for improving the linearity of electromechanical transducers. Frank Massa. 36: 806—1964

5.18e Electrostatic Transducers

Letters to the Editor
Free-field correction for condenser microphones. Walter Koidan and David S. Siegel. 36: 2233—1964
Variation of sensitivity of solid dielectric capacitance transducers. J. W. R. Griffiths and N. P. Murarka. 36: 970—1964

Abstracts
Measurements of electromechanical coupling in condenser microphones. Walter Koidan. 36: 1013—1964

Patents
Bidirectional transducers. Marcel Hervé. 36: 1784—1964
Electrostatic transducer. Gerhard M. Sessler and James E. West. 36: 1610 (2 patents)—1964

5.18g Electromagnetic Transducers

Patents
Adjustable temperature compensated transducer. James W. Johannson. 36: 2278—1964
Sub-miniature transducer. Joachim H. Todt. 36: 1611—1964
Variable reluctance transducer. John R. Tavis. 36: 1611—1964

5.18p Piezoelectric Transducers, Ferroelectrics

Papers
Behavior of piezoceramic projector materials under hydrostatic pressure. R. Y. Nishi and R. F. Brown. 36: 1292—1964
Experiments with the electrical analog of a piezoelectric transducer. M. Redwood. 36: 1872—1964
On the theory of segmented electromechanical systems. Gordon E. Martin. 36: 1366—1964
Radial deformation of a composite piezoelectric annular disk. D. K. Sinha. 36: 1926—1964
Variation of electroelastic constants of polycrystalline lead titanate zirconate with thoroughness of poling. D. Berlincourt. 36: 515—1964
Vibrations of coaxially segmented, longitudinally polarized ferroelectric tubes. Gordon E. Martin. 36: 1496—1964

Letters to the Editor
Sold-core probe hydrophone. James E. Barger and F. V. Hunt. 36: 1589—1964
Use of high-strength ceramics in vibration transducers. Earle Jones. 36: 1215—1964

Abstracts
Experience with the flextensional transducer. O. L. Akervold and C. C. Fox. 36: 1013—1964
Flexural vibrations of bilaminar ceramic plates. Harry A. Schenck. 36: 2011—1964
Measurement dynamic strain vibrating piezoceramic bending bars. C. C. Fox. 36: 1013—1964
On the properties of segmented ferroelectric ceramic systems. Gordon E. Martin. 36: 1012—1964

Subtitles
Piezoelectric transducers. G. W. McMahon. 36: 696—1964
Piezoelectric transducers. D. O. Miles. 36: 1472—1964

Patents
Crystal vibrator of convex lens configuration having opposed convex surfaces. Toshio Shinada and Akira Ohnuki. 36: 806—1964
High power sonic transducers. Jack Kritz. 36: 1785—1964
High temperature quartz piezoelectric devices. James C. King. 36: 1005—1964
Method of making electroacoustic transducers. Frank Massa. 36: 2278—1964
Piezoelectric device. Louis A. Dick and Lloyd G. Martyn. 36: 806—1964
Piezoresistive transducer employing oxygen-deficient rutile as the piezoresistive material. Lewis E. Hollander, Jr. 36: 1784—1964

5.19 Tuning Forks, Frequency Standards, Frequency-Measuring and -Recording Instruments. Time Standards. Chronographs

Patents
Mechanical vibratory unit. William J. Holt, Jr. 36: 1785—1964
Resonant reed relay. Fred H. Osborne. 36: 806—1964

5.20 Tone and Wave Synthesizers

Papers
Stimulator for complex acoustic waveforms. Edmund M. Glaser. 36: 1288—1964

5.21 **Vibration Devices. Devices for Generating or Damping Vibrations. (See also 12., 12.3, 12.3i, 12.3p, and 12.3v.)**

Papers

Direct mechanical determination of the dynamic response of diaphragms. D. O. Miles. **36**: 1471—1964

Simple method for observing audiofrequency resonances and sound beams in crystal. Edwin R. Fitzgerald. **36**: 2086—1964

6 MUSIC AND MUSICAL INSTRUMENTS

6.1 General, Unclassified

Papers

Perception of music heard via interfering paths. Theodore J. Schultz and B. G. Watters. **36**: 897—1964

Timbre cues and the identification of musical instruments. E. L. Saldanha and John F. Corso. **36**: 2021—1964

Abstracts

Acoustics and music. Robert W. Young. **36**: 2017(T)—1964

Acoustics of musical instruments. Earle L. Kent and Jody C. Hall. **36**: 2018(T)—1964

Analysis of school instrumental music-room acoustics. Nelson G. Patrick and Charles R. Boner. **36**: 2014—1964

Architectural acoustics as related to church music and the organ. Robert Noehren. **36**: 1033(T)—1964

Audio-visual aids for the study of musical sounds. Earle L. Kent and Jody C. Hall. **36**: 1033—1964

Ear and music. Earle L. Kent. **36**: 2018(T)—1964

Musical character of tones as related to speed of tonal processing in the nervous system. Paul C. Boomsliter and Warren Creel. **36**: 2008—1964

Musical relations and the ear. Symposium on musical acoustics. I. (Acoustical Society of America meeting.) Arthur H. Benade and Earle L. Kent. **36**: 1052—1964

Musical sources. Symposium on musical acoustics. II. (Acoustical Society of America meeting.) Carleen Hutchins and Jody C. Hall. **36**: 1052—1964

Referential theory of music. Paul S. Boomsliter. **36**: 2014(T)—1964

Temperament habits and preferences of professional musicians. Donald W. Stauffer. **36**: 1025—1964

Welcome (Session V. Musical Acoustics II. Acoustical Society of America meeting). Dean E. W. Doty. **36**: 2017(T)—1964

Patents

Musical note meter. Hjalmar Kylin and Anne Kylin. **36**: 1785—1964

Musical teaching device. Phillip L. Aaron. **36**: 1982—1964

Musical typewriter. Harry R. Hagelstein and Emma A. Hagelstein. **36**: 247—1964

Music teaching device. Roy Hall. **36**: 1981—1964

Turkey call. Taylor Z. Williams. **36**: 1981—1964

Book Reviews

Dictionary of Hammond Organ Stops. Stevens Irwin. (Reviewed by Wilmer T. Bartholomew.) **36**: 1234—1964

News

Dr. Harry F. Olson urges wider exploitation of electronics to advance musical composition, synthesis, and reproduction. **36**: 400—1964

6.2 Bells, Xylophones. Other Instruments having Rigid Vibrators

Patents

Musical straw means. Arthur Barr. **36**: 1611—1964

Percussion instrument. Cedric H. Pihl. **36**: 634—1964

Sound and picture toy. Ralph W. Crawford and Leslie W. Sly. **36**: 1242—1964

Vocal pitch finder. Roger E. Greider. **36**: 2434—1964

6.3 Brass Wind Instruments (Lip-Vibrated)

Papers

Some factors in the recognition of timbre. Kenneth W. Berger. **36**: 1888—1964

Abstracts

Nonlinear aspects of wind-instrument regeneration (workshop session Acoustical Society of America meeting). **36**: 1020(T)—1964

Pitch change of the stopped French horn. Robert W. Pyle, Jr. **36**: 1025—1964

6.4 Drums and Other Membranophonic Instruments

Patents

Drum. Morris Lang and Saul Goodman. **36**: 2434—1964

Non slip drum holder. Charles C. Ryan. **36**: 247—1964

Position rings for drumsticks. Allan R. Simpson, Jr. **36**: 2434—1964

6.5 Pipe Organs

Abstracts

Absorption cross section of a pipe organ. A. H. Benade. **36**: 1025—1964

Architectural acoustics as related to church music and the organ. Robert Noehren. **36**: 1033(T)—1964

Effect of wall material on organ-pipe tone—an evaluation of some earlier experiments. John Backus. **36**: 1025—1964

Transient response of pipes. Clyde E. Ingalls. **36**: 2014—1964

Patents

Air control for the pipes of a pipe organ. Lawrence L. Schoenstein. **36**: 2435—1964

Organ valve and actuating means therefor. Carl F. Durst, and Frederick R. Durst. **36**: 2434—1964

Pipe organ servicing apparatus. Herbert E. McKitrick. **36**: 2435—1964

Quickly mountable, cavity type pipe organ valve. Chester A. Raymond. **36**: 2434—1964

Visual instructing device. Elmer H. Bridges. **36**: 2435—1964

Book Reviews

Dictionary of Pipe Organ Stops. Stevens Irwin. (Reviewed by W. C. Wayne, Jr.). **36**: 2429—1964

6.6 Pianos and Other Keyboard Stringed Instruments

Papers

Normal vibration frequencies of a stiff piano string. Harvey Fletcher. **36**: 203—1964

Abstracts

Acoustics of keyboard instruments. Daniel W. Martin. **36**: 2018(T)—1964

Patents

Keyfork arrangement. Clifford W. Andersen. **36**: 2436—1964

Musical instrument. Joseph A. Marsich. **36**: 2435—1964

Piano action. Frederick A. Guth. **36**: 2435—1964

Piano construction. John P. Quitter, Merton D. Corwin, and William F. Lakamp. **36**: 2436—1964

Pianoforte. Yoshio Fukuyama. **36**: 2435—1964

Rotary valve for fluid operated musical instruments. Dayton Herschel Danley. **36**: 2436—1964

Wrestplanks. Frank H. Walsh. **36**: 2436—1964

News

First technical congress on the history of the piano. **36**: 2426—1964

Errata

Normal vibration frequencies of a stiff piano string [J. Acoust. Soc. Am. **36**, 203–209 (1964)]. Harvey Fletcher. **36**: 1214—1964

6.7 Violin Family. Stringed Instruments, Except Keyboard Type

Abstracts

Comparison of the acoustical and constructional parameters of the convential 16 to 17-in. viola and the new 20-in. vertical viola. Carleen M. Hutchins. **36**: 1025—1964

Resonance in violins. C. L. Caldwell. **36**: 1025—1964

Patents

Accessory for stringed instruments of the violin and viola type. Irving Edward Tevis. **36**: 2436—1964

Banjo fifth string tuning peg. Josephus B. Thompson. **36**: 1425—1964

Bow for a string instrument. Ferdinand Stühlen. **36**: 1611—1964

Bridge for stringed musical instruments. Karl Eduard Gottlieb Weinreich. **36**: 1419—1964

Chord-forming attachment for stringed musical instrument. Emil J. Granius. **36**: 1982—1964

Instrument for playing guitars, banjos and the like. Joseph S. Moshay. **36**: 1005—1964

Interchangeable stringed musical instrument. Charles Savona. **36**: 1982—1964

Musical instrument. Leo Krebs. **36**: 1242—1964

Muting device for stringed musical instruments. James D. Webster. **36**: 2279—1964

Self-adjusting bridge for viol instruments. Douglas Jaquith. **36**: 2278—1964

String and process for its manufacture. Willi Bayer. **36**: 1419—1964

Stringed musical instrument finger board. Peter P. Sceusa. **36**: 247—1964

Strings for musical instruments. John L. Martin. **36**: 1982—1964

Tailpiece for stringed instruments. Mosa Havivi and Max Frirsz. **36**: 247—1964

Tone changer for electric steel pedal guitars. Robert Irvin Smith and Billy Jess Woodruff. **36**: 1982—1964

Violins and like instruments. John G. Charlesworth. **36**: 2436—1964

Violin support. Julien A. Bried. **36**: 2436—1964

6.8 Wood Winds

Papers

Effect of wall material on the steady-state tone quality of woodwind instruments. John Backus. **36**: 1881—1964

Harmonic structure of the tone of the bassoon. Paul R. Lehman. **36**: 1649—1964

Abstracts

Effect of steady air flow on the response frequencies and *Q*'s of the clarinet. John Backus. **36**: 2014—1964

Nonlinear aspects of wind-instrument regeneration (workshop session Acoustical Society of America meeting). **36**: 1020(T)—1964

Spectrum-envelope method for synthesis of clarinet tones. William J. Strong. **36**: 2014—1964

Patents

Musical whistle. Hop Lee. **36**: 1982—1964

Mute and reflector for musical wind instruments. Edwin J. Alles. **36**: 1242—1964

6.9 Electrical Musical Instruments

Abstracts

Church acoustics and electronic organs. Daniel W. Martin. **36**: 1033(T)—1964

Patents

Artificial reverberation control apparatus. John M. Hanert. **36**: 634—1964

Chord organ. Eli D. Czarnecki. **36**: 2280—1964

Circuit for simulating vibrato effect by amplitude modulation of tone by sawtooth waveform. Harry F. Olson and Herbert Belar. **36**: 2438—1964

Dynamically keyed musical instrument. Melville Clark, Jr. **36**: 2439—1964

Electrical musical instrument coupling system. Walter J. Anderson. **36**: 2281—1964

Electrical musical instrument employing piano damper pedal operated switch. John M. Hanert. **36**: 2280—1964

Electrical musical instruments. James A. Koehl. **36**: 2279—1964

Electrical music system. Don L. Bonham. **36**: 2438—1964

Electrical pick-up for a reed musical instrument. Benjamin F. Miessner. **36**: 2438—1964

Electric piano. Clarence L. Fender. **36**: 2439—1964

Electrified accordion. Kurt Berwin. **36**: 634—1964

Electro-acoustical delay line useful for producing reverberation in electrical musical instruments. Nathan I. Daniel. **36**: 2439—1964

Electronic apparatus. Harald E. W. Bode. **36**: 2281—1964

Electronic harpsichord loudspeaker arrangement and the like. Jerome Markowitz. **36**: 2281—1964

Electronic tone generator. Donald O. Gifford. **36**: 2281—1964

Electronic tremulant. Harold O. Schwartz and Carl L. Wolgast. **36**: 2279—1964

Electronic tremulant system. Thomas J. George. **36**: 2440—1964

Key arrangements for chord organs. Thomas S. Lo Duca. **36**: 2280—1964

Keyboard for a monophonic instrument with improved sound-sustaining means. Hugh Le Caine. **36**: 2440—1964

Mechanism for regulating chord base tones of a chord organ. Choshi Enya. **36**: 2281—1964

Multiple zone stereophonic effect for electric organs. Alan C. Young. **36**: 2440—1964
Organ ensemble and reverberation system. Thomas J. George. **36**: 2440—1964
Organ vibrato control. Richard E. Williams. **36**: 2437—1964
Percussion arrangement for electronic musical instrument. John H. Riggs, Frank B. Lumney, and Howard G. Bauer. **36**: 2437—1964
Percussion system for an electronic musical instrument. William H. Krug. **36**: 2437—1964
Piano string and frame assembly. Mahlon D. Burkhard and Hale J. Sabine. **36**: 2436—1964
Rotary electrical apparatus. Anthony C. Ippolito. **36**: 2282—1964
Rotatable acoustical apparatus. Harris Herman Santi. **36**: 2280—1964
Simulated multiple rate gyrating modulator. William C. Wayne, Jr. **36**: 2439—1964
Sound generating means. Harold O. Schwartz, Anthony C. Ippolito, and William V. Machanian. **36**: 2441—1964
Speaker system for adding tremolo. Donald J. Leslie. **36**: 2438—1964
Swell control. Thomas B. Gibbs and William H. Krug. **36**: 2438—1964
Switch arrangement for electronic organs. John E. Holt. **36**: 2280—1964
Switch for electronic musical instrument. Amedeo Iorio. **36**: 2279—1964
Switch for electronic musical instruments. Howard E. Holman. **36**: 2440—1964
Timbre control for string instruments. Chauncey Richard Evans. **36**: 2437—1964
Timbre-selector for a musical synthesizer. Rene Seybold. **36**: 2279—1964
Tone color circuits for electrical organs. Walter Munch, Jr. **36**: 2439—1964
Tone generation system. Marvin E. Anderson. **36**: 2438—1964
Transistor tone generating system using transistorized keying means. Harold O. Schwartz. **36**: 2280—1964
Vibrato apparatus. Alvan Donald Arsem, Fred H. Osborne, Ira M. Laurien, and Christian L. Flateau. **36**: 2281—1964
Vibrato circuit. Richard E. Williams. **36**: 2437—1964
Vibrato device for a musical instrument. Thomas B. Gibbs. **36**: 2281—1964
Vibrato mechanism. Thomas B. Gibbs. **36**: 2279—1964

6.11 Singing

Patents

Voice developing device. Ernest Camerino. **36**: 1982—1964

6.12 Intonation. Vibrato. Musical Scales. Musical Composition

Papers

Some factors in the recognition of timbre. Kenneth W. Berger. **36**: 1888—1964
Timbre cues and the identification of musical instruments. E. L. Saldanha and John F. Corso. **36**: 2021—1964

Abstracts

Temperament habits and preferences of professional musicians. Donald W. Stauffer. **36**: 1025—1964

Patents

Music chord finder. Andrew J. Weis. **36**: 406—1964

6.13 Electronic Music

News

Dr. Harry F. Olson urges wider exploitation of electronics to advance musical composition, synthesis, and reproduction. **36**: 400—1964

7 NOISE AND NOISE CONTROL

7.1 General, Unclassified

Papers

Ambient noise under Arctic-Sea ice. A. R. Milne and J. H. Ganton. **36**: 855—1964
Backward masking for tones in narrow-band noise. H. N. Wright. **36**: 2217—1964
Covariance of noise in attenuating media. W. S. Liggett, Jr., and M. J. Jacobson. **36**: 1183—1964
Detection of tone pulse of various durations in noise of various bandwidths. G. van den Brink. **36**: 1206—1964
Estimating noise hazard with the sound-level meter. J. L. Flanagan and Newman Guttman. **36**: 1654—1964
Nonstationary shot noise. Y. K. Lin. **36**: 82—1964

Letters to the Editor

Modification of noy tables. K. D. Kryter and K. S. Pearsons. **36**: 394—1964
On the discrimination factor for a continuous distribution of noise sources. Elizabeth M. Arase. **36**: 785—1964

Abstracts

Characteristics of noise generated by an electropneumatic transducer. John J. Van Houten and Walter T. Fiala. **36**: 1036—1964
Consistency of identification of consonants heard in noise. Irwin Pollack. **36**: 1047—1964
Detection of Markovian sequences of signals. Morton P. Friedman and Edward C. Carterette. **36**: 1043—1964
Effect of noise crosscorrelation for a narrow-band masking noise on the detection of a tonal signal. Ted L. Langford and Lloyd A. Jeffress. **36**: 1042—1964
Farfield patterns of a line array of noise sources. A. H. Lubell. **36**: 1045—1964
Feedback and noise-signal detection at three performance levels. Richard A. Campbell. **36**: 1042—1964
Instrumentation for impulse-noise measurements. James W. Greene. **36**: 1036(T)—1964
Sound isolation for transducer-threshold-noise evaluation. John G. Powell. **36**: 1013—1964
Study of noise and other factors in conference telephony. Mark B. Gardner. **36**: 1036—1964
Techniques for the control of transformer noise. Colin Gordon. **36**: 1037—1964

Patents

Sound simulator circuit. Perry M. Roberts. **36**: 806—1964

News

MIT offers a special summer program on noise and vibration reduction. **36**: 610—1964

Shipboard pipe systems analyzed for liquidborne noise reduction. 36: 401—1964
University of California schedules short course on noise control. 36: 1603—1964

7.2 **Annoyance. Effect of Noise on Human Beings**

Papers
Estimating noise hazard with the sound-level meter. J. L. Flanagan and Newman Guttman. 36: 1654—1964
Single-number criteria for room noise. Robert W. Young. 36: 289—1964
Sound insulation and the apartment dweller. T. D. Northwood. 36: 725—1964
Temporary hearing losses following exposure to pronounced single-frequency components in broad-band noise. Alexander Cohen and Karl C. Baumann. 36: 1167—1964

Letters to the Editor
Acoustics and people. Harold Burris-Meyer. 36: 1967—1964

Abstracts
Speech communications as limited by ambient noise. J. C. Webster. 36: 1988—1964
Use of noise to eliminate one ear from masking experiments. Peter B. Weston and James D. Miller. 36: 2009—1964

7.4 **Community Noise**

Papers
Background-noise levels in suburban communities. Paul B. Ostergaard and Ray Donley. 36: 409—1964

Abstracts
Noise control and the New York City Code Project. Michael J. Kodaras. 36: 1036—1964

7.5 **Noise Spectra**

Letters to the Editor
Conversion between old and new octave-band levels. Theodore J. Schultz. 36: 2415—1964

Subtitles
Noise spectra. Erik Vigran, Kjell Gjaevenes, and Gunnar Arnesen. 36: 1469—1964
Noise spectra. Robert W. Young. 36: 292—1964

7.6 **Noise in Buildings. (See also 2.2.)**

Papers
Impact-noise recommendations for the FHA. T. J. Schultz. 36: 729—1964
Owner's viewpoint in residential acoustical control. Frederick P. Rose. 36: 740—1964
Sound insulation and the apartment dweller. T. D. Northwood. 36: 725—1964

Abstracts
Criticism of the ISO impact-noise test. T. Mariner. 36: 1024—1964
Impact-noise measurements for some floated-floor construction. H. W. Hehmann. 36: 1024—1964
Objections and suggestions on impact and airborne-insulation measurements. G. L. Fuchs. 36: 1024—1964
Simulated background noise to improve acoustical privacy in buildings. J. A. Curtis and J. J. Figwer. 36: 1024—1964

7.7 **Machinery Noise. Mufflers. Noise Silencers**

Abstracts
Hearing-loss trend curves and the damage-risk criterion in diesel-engineroom personnel. J. D. Harris. 36: 1050—1964
Noise in rolling-element bearings. R. H. Scanlan. 36: 1037—1964
Rotor–stator interaction noise studies of a single-stage axial-flow research compressor. W. L. Copeland and J. L. Crigler. 36: 2012—1964
Sound-power studies of model silencers. Norman E. Barnett. 36: 2013—1964
Techniques for the control of transformer noise. Colin Gordon. 36: 1037—1964
Using time to identify noise sources in data-processing machinery. Roger H. Peterson. 36: 1036—1964

Patents
Acoustic curb. Louis J. Jenn and William E. Morrison. 36: 2282—1964
Combined acoustic wall and exhaust gas deflector in operation of jet engines. Maurice A. Garbell. 36: 1242—1964
Exhaust noise reducing and air diffusing means for pneumatic motors. Robert E. Zwayer. 36: 807—1964
Low noise air distributor. Bernard E. Curran, Glenn E. Kautz, and Theodore W. Marshall. 36: 247—1964
Noiseless mixing valve. Julius William Kovach and Sampson T. Noall, Jr. 36: 807—1964
Pneumatic tool muffle. Walter A. Plummer. 36: 807—1964
Suppression of objectionable noise in rotating machinery. Carl B. Dahl. 36: 1242—1964

Book Reviews
Engine Noise—Analysis and Control. C. H. Bradbury. (Reviewed by Cyril M. Harris.) 36: 800—1964

7.8 **Noise Generators (Solid, Liquid, and Gaseous). Sirens**

Papers
Underwater noise produced by bullet entry. Charles B. Leslie. 36: 1138—1964

Abstracts
Improved broad-band random siren. W. P. Rader. 36: 2012—1964
Performance characteristics of a 160 000-W acoustic siren. Robert C. Polly. 36: 2011—1964
Some theoretical aspects of noise generation in shipboard water systems. A. C. Peter and R. Kamo. 36: 1044—1964

Patents
Acoustical vibration test device. Richard K. Kaminski. 36: 1611—1964
Electronic sirens. Harold G. Keeling. 36: 2441—1964
Method and apparatus for obtaining sound. Joseph Kuchera. 36: 1425—1964
Sound simulation system. Melvin E. Church and Daniel D. Lomaz. 36: 2282—1964

7.10 Aerodynamic Noise. Jet Noise

Papers

Acoustical measurements of static tests of clustered and single-nozzled rocket engines. Richard N. Tedrick. **36**: 2027—1964

Fluctuating wall pressure under a separated supersonic flow. A. L. Kistler. **36**: 543—1964

Narrow-band investigations of the longitudinal space-time correlation function in turbulent airflow. Henry P. Bakewell, Jr. **36**: 146—1964

Abstracts

Acoustical measurements of static tests of clustered and single-nozzled rocket engines. Richard N. Tedrick. **36**: 1036—1964

Correlation of launch-vehicle aerodynamic noise with spacecraft flight-vibration data. Robert A. Schiffer. **36**: 1046—1964

Engineering approach to prediction of space-vehicle acoustic environments. William J. Gruner and Garland Johnston. **36**: 1036—1964

Laboratory simulation of aircraft-propeller noise. E. D. Griffith, R. N. Hancock, and C. M. Raulston, Jr. **36**: 1035—1964

Measurement of noise radiated by boundary-layer-excited panels. Lucio Maestrello. **36**: 2012—1964

Noise reduction of jets by multiple nozzles and turbo fans. Kenneth M. Eldred. **36**: 1035—1964

Response of control surface types of structure to jet noise. B. L. Clarkson. **36**: 1046—1964

Some experimental effects of curvature on response of simple panels to intense noise. Carl E. Rucker. **36**: 1046—1964

Sonic boom assessment. E. J. Richards. **36**: 1036—1964

Sound-power spectra from subsonic jets. Norman E. Barnett. **36**: 2012—1964

Sound-power studies of model silencers. Norman E. Barnett. **36**: 2013—1964

8 STANDARDS

8.1 General, Unclassified

Papers

International audiometric zero. Hallowell Davis and Fred Kranz. **36**: 1450—1964

Letters to the Editor

Impact sound under concrete-floating-on-wood-joist floor. Robert W. Young and R. S. Gales. **36**: 1212—1964

Abstracts

Calibration of close talking microphone. M. Copel. **36**: 1019(T)—1964

Problems in microphone absolute calibration. W. Koidan. **36**: 1019(T)—1964

The decibel, measure of transducer performance. R. W. Young. **36**: 1019(T)—1964

Unfinished business with loudspeakers. B. N. Locanthi. **36**: 1019(T)—1964

News

International Standards meetings. Laurence Batchelder and Richard K. Cook. **36**: 1606—1964

Standards notes. **36**: 792, 976—1964

9 SPEECH COMMUNICATION

9.1 General, Unclassified

Patents

Metro-audiometer. Malcolm E. Bernstein. **36**: 406—1964

Book Reviews

Rechevoy Signal v Kibernetike i Svyazi (*The Speech Signal in Cybernetics and Communications*). M. A. Sapozhkov. (Reviewed by M. R. Schroeder.) **36**: 225—1964

News

Conference on communicating by language: the speech process. **36**: 1970—1964

Symposium on models for the perception of speech and visual form. **36**: 1747—1964

9.2 Anatomy and Physiology of the Larynx and Vocal Tract

Papers

Long-term larynx-excitation spectra. P. B. Carr and D. Trill. **36**: 2033—1964

Abstracts

Articulatory activity in vowels. Bjorn E. F. Lindblom. **36**: 1038—1964

Differing pharynx shapes and sizes for vowels. H. M. Truby. **36**: 2002—1964

Electromyographic study of the coarticulation of vowels and consonants. Peter F. MacNeilage. **36**: 1989—1964

Numerical model for coarticulation, using a computer-simulated vocal test. S. E. G. Öhman. **36**: 1038—1964

On the construction of a dynamic vocal-tract model. Jack B. Dennis, Edward C. Whitman, and Raymond S. Tomlinson. **36**: 1038—1964

On the derivation of area functions and acoustic spectra from Cinéradiographic films of speech. John M. Heinz and Kenneth N. Stevens. **36**: 1037—1964

Parameters of lip position. Victoria A. Fromkin. **36**: 1037—1964

Physiological parameters of speech. Peter Ladefoged. **36**: 1037—1964

True model of the vocal tract. J. Anthony. **36**: 1037—1964

Patents

Electronic voice box. James R. Trammell. **36**: 807—1964

Speech facilitating attachment for throat tube. Robert P. Capra. **36**: 807—1964

9.3 Acoustic Analysis of Speech

Papers

Automatic reduction of vowel spectra; an analysis-by-synthesis method and its evaluation. Allan P. Paul, Arthur S. House, and Kenneth N. Stevens. **36**: 303—1964

Long-term larynx-excitation spectra. P. B. Carr and D. Trill. **36**: 2033—1964

New display format and a flexible-time integrator for spectral-analysis instrumentation. David E. Wood. **36**: 639—1964

Short-time spectrum and "cepstrum" techniques for vocal-pitch detection. A. Michael Noll. 36: 296—1964

Letters to the Editor

Sonograph recording techniques. Peter Carmeci and Richard Jorgensen. 36: 1959—1964

Abstracts

Analysis of glide consonants. Arthur S. House and Kenneth N. Stevens. 36: 1038—1964

Analysis of liquid consonants. Yasuo Kato. 36: 1989—1964

Articulatory activity in vowels. Bjorn E. F. Lindblom. 36: 1038—1964

Computer evaluation of pitch extractors. Fred B. Wade. 36: 2001—1964

Decapitation and recapitation, a study of voice quality. Joan E. Miller. 36: 2002—1964

Digital equalizer and deequalizer for speech. J. L. Flanagan, D. I. S. Meinhart, and P. Cummiskey. 36: 1030—1964

Formant tracking by majority weighting of period measurements. D. C. Coulter and S. J. Campanella. 36: 1031—1964

Mathematical analysis of glottal waveforms. Albert Vezza. 36: 1048—1964

Numerical model for coarticulation, using a computer-simulated vocal tract. S. E. G. Öhman. 36: 1038—1964

On the derivation of area functions and acoustic spectra from Cinéradiographic films of speech. John M. Heinz and Kenneth N. Stevens. 36: 1037—1964

Pitch extractor, using clippers. Jerome E. Toffler and Fred B. Wade. 36: 1030—1964

Pitch of speech from a talker supplied with various amounts of helium. Weiant Wathen-Dunn, Sheldon B. Michaels, and Philip Lieberman. 36: 2002—1964

Prediction of the course of F2 across consonants. J. M. Pickett and D. C. Coulter. 36: 1031—1964

Real-time measurement of pitch perturbations. C. R. Howard. 36: 1048—1964

Short-time "cepstrum" pitch detection. A. M. Noll and M. R. Schroeder. 36: 1030—1964

Speech at high atmospheric pressures. Gunnar Fant and Bertil Sonesson. 36: 2002—1964

Speech recognition, using analog threshold logic. T. B. Martin, H. J. Zadell, A. L. Nelson, and M. B. Herscher. 36: 2001—1964

Speech energy rate of change as a function of its spectral location. Louis R. Focht. 36: 1030—1964

Speech recognition by formant pattern matching in *N*-dimensional space. S. J. Campanella, D. C. Coulter, and P. Engler. 36: 1031—1964

Thirty years of vocoder research. Homer Dudley. 36: 1021—1964

Utilization of the redundancy of the phonemic transcription of speech for automatic-speech recognition. Klaus W. Otten and Richard T. Kleiner. 36: 1039—1964

9.4 Speech Synthesis

Papers

Automatic reduction of vowel spectra: an analysis-by-synthesis method and its evaluation. Allan P. Paul, Arthur S. House, and Kenneth N. Stevens. 36: 303—1964

Abstracts

Analysis of liquid consonants. Yasuo Kato. 36: 1989—1964

Application of delta modulation to the channel vocoder. C. F. Teacher and C. Mutschler. 36: 1031—1964

Bandpass compressor. B. Gold and C. M. Rader. 36: 1022—1964

Compact pitch computer. N. L. Daggett and B. Gold. 36: 1030—1964

Control language for experimental speech synthesis. Jack B. Dennis. 36: 1039—1964

Frequency multiplex system for a 10-spectrum-channel voice-excited vocoder. R. M. Golden, D. J. MacLean, and A. J. Prestigiacomo. 36: 1022—1964

Normalization of spectral information in a pulse-excited channel-vocoder system. E. Paulus and E. H. Rothauser. 36: 2002—1964

Note on buss-hiss detection. Bernard Gold. 36: 1030—1964

Performance of a code-operated speech synthesizer. Harry F. Olson and H. Belar. 36: 1023—1964

Pitch-period reiterating speech-compression system. Joseph J. Megna. 36: 1030—1964

Prediction of the course of F2 across consonants. J. M. Pickett and D. C. Coulter. 36: 1031—1964

Pulse-excited vocoder system. E. Paulus and E. H. Rothauser. 36: 2002—1964

Role of synthetic speech in speech research. Walter Lawrence. 36: 1022—1964

Self-synchronized vocoder digital-transmission systems. J. A. Dumanian. 36: 1022—1964

Some work on channel-vocoder excitation. Joseph Tierney. 36: 1022—1964

Source-system interaction in the vocal tract. J. L. Flanagan and D. I. S. Meinhart. 36: 2001—1964

Spectral flattening and its application as a synthesis technique. Lawrence E. Cassel. 36: 1029—1964

Studies on a computer-programmed formant vocoder. Cecil H. Coker. 36: 1022—1964

Study of vocoder filters by computer simulation. Charles M. Rader. 36: 1023—1964

Thirty years of vocoder research. Homer Dudley. 36: 1021—1964

Patents

Multivoice unit. Robert K. Ostrander. 36: 634—1964

Errata

Digital computer simulation of a sampled-data voice-excited vocoder [J. Acoust. Soc. Am. 35, 1358–1366 (1963)]. Roger M. Golden. 36: 398—1964

9.5 Perception of Speech and Speechlike Sounds. (See also 4.15.)

Papers

Articulation-test control circuits. William B. Snow. 36: 2048—1964

Consistency of identification of consonants heard in noise. Irwin Pollack. 36: 2363—1964

Distortion of the temporal pattern of speech: interruption and alternation. A. W. F. Huggins. 36: 1055—1964

Effect of noise on listening levels in conference telephony. Mark B. Gardner. 36: 2354—1964

Message probability and message reception. Irwin Pollack. 36: 937—1964

Perception and retention of verbal information presented during auditory shadowing. G. H. Mowbray. **36**: 1459—1964
Perceptual bases of speaker identity. William D. Voiers. **36**: 1065—1964
Talker-recognition procedure based on analysis of variance. S. Pruzansky and M. V. Mathews. **36**: 2041—1964

Letters to the Editor
Helium speech. K. Holywell and G. Harvey. **36**: 210—1964
Intelligibility of frequency-modulated speech. W. H. Darnall and J. N. Birch. **36**: 1391—1964
Note on predicting speech-discrimination scores. Lois L. Elliott. **36**: 1961—1964

Abstracts
Effects of selective narrow-band filtering on the perception by normal listeners of Harvard PB-50 word lists. William E. Castle. **36**: 1047—1964
Experiments in tactile speech perception. Robert L. Lucas. **36**: 1051—1964
On the applications of distinctive features to speech recognition. John F. Hemdal and George W. Hughes. **36**: 1039—1964
Perceptual reorganization of repeated speech sounds. Richard M. Warren and Roslyn P. Warren. **36**: 1047—1964
Prediction of the course of F2 across consonants. J. M. Pickett and D. C. Coulter. **36**: 1031—1964
Speech recognition by formant pattern matching in *N*-dimensional space. S. J. Campanella, D. C. Coulter, and P. Engler. **36**: 1031—1964
Speech recognition using analog threshold logic. T. B. Martin, H. J. Zadell, A. L. Nelson, and M. B. Herscher. **36**: 2001—1964
Utilization of the redundancy of the phonemic transcription of speech for automatic-speech recognition. Klaus W. Otten and Richard T. Kleiner. **36**: 1039—1964
Visual control of phonemic contrasts: a test of the motor theory of speech perception. D. V. Cross, H. L. Lane, and W. C. Sheppard. **36**: 1047—1964

Patents
Normalized sound control system. James F. Kaiser. **36**: 807—1964

9.6 Measures of Speech Intelligibility, Quality, Information Content

Papers
Articulation-test control circuits. William B. Snow. **36**: 2048—1964
Consistency of identification of consonants heard in noise. Irwin Pollack. **36**: 2363—1964
Distortion of the temporal pattern of speech: interruption and alternation. A. W. F. Huggins. **36**: 1055—1964
Effect of noise on listening levels in conference telephony. Mark B. Gardner. **36**: 2354—1964
Information rate necessary to transmit pitch-period durations for connected speech. Harry L. Shaffer. **36**: 1895—1964
Message probability and message reception. Irwin Pollack. **36**: 937—1964
New display format and a flexible-time integrator for spectral-analysis instrumentation. David E. Wood. **36**: 639—1964
Perceptual bases of speaker identity. William D. Voiers. **36**: 1065—1964
Relations between speech-interference contours and idealized articulation-index contours. J. C. Webster. **36**: 1662—1964
Talker-recognition procedure based on analysis of variance. S. Pruzansky and M. V. Mathews. **36**: 2041—1964

Letters to the Editor
Note on predicting speech-discrimination sources. Lois L. Elliott. **36**: 1961—1964

Abstracts
Comparisons of some statistical distance measures for talker identification. M. H. Becker, R. Gnanadesikan, M. V. Mathews, R. S. Pinkham, S. Pruzansky, and M. B. Wilk. **36**: 1988—1964
Consistency of identification of consonants heard in noise. Irwin Pollack. **36**: 1047—1964
Effects of selective narrow-band filtering on the perception by normal listeners of Harvard PB-50 word lists. William E. Castle. **36**: 1047—1964
Parameters of lip position. Victoria A. Fromkin. **36**: 1037—1964
Pitch of speech from a talker supplied with various amounts of helium. Weiant Wathen-Dunn, Sheldon B. Michaels, and Philip Lieberman. **36**: 2002—1964
Reaction time during the discrimination of synthetic stop consonants. M. Studdert-Kennedy, A. M. Liberman, and Kenneth N. Stevens. **36**: 1989—1964
Speech at high atmospheric pressures. Gunnar Fant and Bertil Sonesson. **36**: 2002—1964
Speech communications as limited by ambient noise. J. C. Webster. **36**: 1988—1964

Errata
Method for the calculation and use of the articulation index [J. Acoust. Soc. Am. **34**, 1689–1697 (1962)]. K. D. Kryter. **36**: 1393—1964

9.7 Phonetics, Linguistics, Statistics of Language

Papers
Effects of speaking condition on pitch. Cyril M. Harris and Mark R. Weiss. **36**: 933—1964

Abstracts
Acoustic phonetic transcription of written English. B. V. Bhimani, J. L. Dolby, and H. L. Resnikoff. **36**: 1988—1964
Crosslinguistic study of vowel discrimination. Kenneth N. Stevens, S. E. G. Öhman, M. Studdert-Kennedy, and A. M. Liberman. **36**: 1989—1964
Electromyographic study of the coarticulation of vowels and consonants. Peter F. MacNeilage. **36**: 1989—1964
Emotional effects of fundamental-frequency transformations. Philip Lieberman, Sheldon B. Michaels, and Henry I. Soron. **36**: 1048—1964
On "calibrating" the linguists' perception of "phonemic" pitch and stress levels. Philip Lieberman. **36**: 1048—1964
On the relationship between prosodic features and the lexical content of speech. Henry I. Soron. **36**: 1048—1964
Phoneme proportion constancy in English. M. C. Schultz and L. J. Bogardus. **36**: 1988—1964

Recognition of lexical tone in Mandarin Chinese by sampling of fundamental frequency. Robert Lee Brotzman. **36**: 1048—1964
Statistics of spoken American English. Edward C. Carterette and Margaret Hubbard Jones. **36**: 1989—1964
Syllable segmentation in voiced environments. Arthur N. Stowe. **36**: 1048—1964

Book Reviews
Phonologic Studies of Quantity in Swedish. Based on material from Stockholm speakers. (Monografier utgivna av Stockholms kommunal-förvaltning 27.) Claes-Christian Elert. (Reviewed by Morris Halle.) **36**: 2429—1964

News
Foundations of Language—a new journal. **36**: 2426—1964
Linguistic Institute of the Linguistic Society of America—preliminary announcement. **36**: 2420—1964

9.8 Systems for Speech Transmission. Analysis-Synthesis Telephony, Speech Coding

Papers
Channel vocoder with digital pitch extractor. Joseph Tierney, Bernard Gold, Vincent Sferrino, J. A. Dumanian, and Everett Aho. **36**: 1901—1964
Effect of noise on listening levels in conference telephony. Mark B. Gardner. **36**: 2354—1964
Experiment with speechlike phase in a spectrally flattened pitch-excited channel vocoder. Bernard Gold. **36**: 1892—1964
Information rate necessary to transmit pitch-period durations for connected speech. Harry L. Shaffer. **36**: 1895—1964
Note on buzz-hiss detection. Bernard Gold. **36**: 1659—1964

Letters to the Editor
Bandpass compressor: a new type of speech-compression device. Bernard Gold and Charles Rader. **36**: 1215—1964
Equivalence of "vector" and autocorrelation pitch detectors. Man Mohan Sondhi. **36**: 1964—1964
Frequency multiplex system for a 10-spectrum-channel voice-excited vocoder. Roger M. Golden, D. J. MacLean, and A. J. Prestigiacomo. **36**: 1962—1964
Helium speech. K. Holywell and G. Harvey. **36**: 210—1964
Vector pitch detection. Charles M. Rader. **36**: 1963—1964

Abstracts
Acoustic phonetic transcription of written English. B. V. Bhimani, J. L. Dolby, and H. L. Resnikoff. **36**: 1988—1964
Articulation-test control circuits. William B. Snow. **36**: 1047—1964
Digital equalizer and deequalizer for speech. J. L. Flanagan, D. I. S. Meinhart, and P. Cummiskey. **36**: 1030—1964
Frequency modulation of speech. H. R. Silbiger. **36**: 2001—1964
Pitch extractor, using clippers. Jerome E. Toffler and Fred B. Wade. **36**: 1030—1964
Pitch-period reiterating speech-compression system. Joseph J. Megna. **36**: 1030—1964
Short-time "cepstrum" pitch detection. A. M. Noll and M. R. Schroeder. **36**: 1030—1964
Some modifications to the General Dynamics/Electronics formant vocoder. R. A. Houde, W. D. Larkin, and L. C. Stewart. **36**: 2001—1964

Patents
Apparatus for deriving pitch information from a speech wave. A. J. Prestigiacomo. **36**: 634—1964
Autocorrelation vocoder. Edward E. David, Jr. **36**: 1243—1964
Communication means for skiing apparatus. Jurden Moore. **36**: 2282—1964
Consonant response in narrow band transmission. Emil Hopner and Maxwell C. Andrews. **36**: 1243—1964
Dynamic analog speech synthesizer. George Rosen. **36**: 808—1964
Feedback vocoder. Frank H. Slaymaker. **36**: 2441—1964
Language instruction apparatus. Stephen A. Caldwell. **36**: 634—1964
Mouthpiece for submarine use. Jack A. Minton, Jr., and Don B. Wilson. **36**: 2283—1964
Signal conversion circuits. William C. Dersch. **36**: 1425—1964
Speech security system. Arthur H. Ross. **36**: 2283—1964
Speech synthesis system. Genung L. Clapper. **36**: 1425—1964
Vocoder apparatus. Max V. Mathews and Joan E. Miller. **36**: 1243—1964
Vocoder excitation generator. Manfred R. Schroeder. **36**: 2282—1964
Voice operated control system. Warren U. Amfahr. **36**: 2441—1964

Errata
Digital computer simulation of a sampled-data voice-excited vocoder [J. Acoust. Soc. Am. **35**, 1358–1366 (1963)]. Roger M. Golden. **36**: 398—1964

9.9 Instruments for Speech Measurement

Papers
Automatic reduction of vowel spectra: an analysis-by-synthesis method and its evaluation. Allan P. Paul, Arthur S. House, and Kenneth N. Stevens. **36**: 303—1964
Channel vocoder with digital pitch extractor. Joseph Tierney, Bernard Gold, Vincent Sferrino, J. A. Dumanian, and Everett Aho. **36**: 1901—1964
Note on buzz-hiss detection. Bernard Gold. **36**: 1659—1964

Abstracts
Compact pitch computer. N. L. Daggett and B. Gold. **36**: 1030—1964
Formant tracking by majority weighting of period measurements. D. C. Coulter and S. J. Campanella. **36**: 1031—1964
Note on buzz-hiss detection. Bernard Gold. **36**: 1030—1964

9.10 Machine Recognition of Speech

Papers
Talker-recognition procedure based on analysis of variance. S. Pruzansky and M. V. Mathews. **36**: 2041—1964

Abstracts

Basic information-bearing machine-acoustic noniterative segments of continuous speech waves. B. V. Bhimani. **36**: 1049—1964

Machine recognition of Mandarin monosyllable. Kung-Pu Li. **36**: 1039—1964

Syllable segmentation in voiced environments. Arthur N. Stowe. **36**: 1048—1964

Utilization of the redundancy of the phonemic transcription of speech for automatic-speech recognition. Klaus W. Otten and Richard T. Kleiner. **36**: 1039—1964

Patents

Frequency normalization in speech sound waves. Meguer V. Kalfaian. **36**: 808—1964

Phonetic typewriter of speech. Meguer V. Kalfaian. **36**: 1243—1964

10 ULTRASONICS

10.1 General, Unclassified

Book Reviews

Encyclopedia of Physics, Volume XI, Part II, Acoustics II. S. Flügge, editor. (Reviewed by Isadore Rudnick.) **36**: 800—1964

Physical Acoustics. Volume I, Part A: Methods and Devices. Warren P. Mason, editor. (Reviewed by Harry F. Olson. **36**: 1751—1964

Sound and Ultrasound Waves in Air, Water, and Solid Bodies (Zvukovye i ul'trazukovye volny v vozdukhe, vode, i tverdykh telakh). V. A. Krasil'nikov. (Reviewed by Joseph L. Hunter.) **36**: 1608—1964

News

Annual Meeting of the American Institute of Ultrasonics in Medicine. William J. Fry. **36**: 2419—1964

IEEE Sonics and Ultrasonics Symposium. **36**: 2245—1964

New Documentation Center for Ultrasonics seeks bibliographical information. **36**: 980—1964

1964 sonics and ultrasonics symposium. **36**: 793—1964

Errata

Bone-conduction thresholds for sonic and ultrasonic frequencies [J. Acoust. Soc. Am. **35**, 1738–1743 (1963)]. John F. Corso. **36**: 1391—1964

10.2 Physical Effects of Ultrasonic Waves. Optical Diffraction. Ultrasonic Processing

Papers

Angular positioning of thin metallic samples for optimum continuous-wave ultrasonic imaging. Harold Berger and Roberta A. di Novi. **36**: 2053—1964

Application of ultrasonic standing waves to the generation of optical-beam scanning. H. G. Aas and R. K. Erf. **36**: 1906—1964

Influence of radiation on the cavitation threshold of degassed water. R. D. Finch. **36**: 2287—1964

Sonic drying. Robert S. Soloff. **36**: 961—1964

Successive diffraction theory for diffraction of light by ultrasonic waves of arbitrary waveform. L. E. Hargrove. **36**: 323—1964

Letters to the Editor

Light diffraction by ultrasonic waves for oblique incidence. Walter G. Mayer. **36**: 779—1964

Abstracts

Application of photoelasticity to research on effects of ultrasonic stress waves on metals. W. H. Frandsen and B. Langenecker. **36**: 1034—1964

Coupled mode theory applied to ultrasonic-light diffraction. Bill D. Cook. **36**: 1034—1964

Light diffraction by ultrasonic waves as a multiple-scattering process. Harold V. Hance. **36**: 1034—1964

10.3 Ultrasonic Instruments. (See also 5.18.)

Papers

Angular positioning of thin metallic samples for optimum continuous-wave ultrasonic imaging. Harold Berger and Roberta A. di Novi. **36**: 2053—1964

Application of ultrasonic standing waves to the generation of optical-beam scanning. H. G. Aas and R. K. Erf. **36**: 1906—1964

Coupling to hypersonic waves. W. H. Haydl, K. Blötekjaer, and C. F. Quate. **36**: 1670—1964

Dual-frequency ultrasonic pulse-echo testing. Otto R. Gericke. **36**: 313—1964

Experimental determination of the freefield sound speed in water. Werner G. Neubauer and Louis R. Dragonette. **36**: 1685—1964

Generation and reception of elastic waves via a plane boundary. A. Lutsch and G. J. Kühn. **36**: 428—1964

Reciprocity calibration of a standard hydrophone at 16 000 psi. Claude C. Sims and T. A. Henriquez. **36**: 1704—1964

Resonant vibration of a cone. E. Eisner. **36**: 309—1964

Strain amplitude of Mc/sec ultrasonic waves in solids. G. A. Alers and P. A. Fleury. **36**: 1297—1964

Torsionally resonant amplitude transformers for high magnification. E. Eisner. **36**: 1—1964

Ultrahigh-frequency ultrasonic absorption cell. Joseph L. Hunter and Henry D. Dardy. **36**: 1914—1964

Ultrasonic measurement of elastic moduli at elevated temperatures, using momentary contact. E. H. Carnevale, L. C. Lynnworth, and G. S. Larson. **36**: 1678—1964

Velocity of sound measurements in high-pressure steam. James Woodburn. **36**: 1918—1964

Letters to the Editor

Generation of circularly polarized transverse elastic waves. Norman G. Einspruch. **36**: 971—1964

Longitudinal-wave ultrasonic measurements in iron up to 400°C. Arthur Edson Lord, Jr. **36**: 2236—1964

Transducer-thickness effects in measuring ultrasonic velocities. E. W. Kammer. **36**: 1594—1964

Abstracts

Artifacts in ultrasonography. Benson Carlin and Ray A. Brinker. **36**: 2017—1964

Broad-band excitation of microwave ultrasonic waves. R. B. Hemphill and R. N. Claytor. **36**: 2011—1964

Design of a 3-Gc/sec hypersonic interferometer for liquids. James L. Stewart and Ellen S. Stewart. **36**: 1040—1964

Mach-Zehnder type of ultrasonic interferometer. W. R. Turner. **36**: 1040—1964

Patents

Apparatus for ultrasonic testing of materials. Thomas G. Brown, Alexander B. C. Rankin, and Roy W. G. Haslett. **36**: 1005—1964

Bragg diffraction ultrasonic devices. Hyman Hurvitz. **36**: 2283—1964

Carrier technique for wide-range ultrasonic inspection. Elliot A. Henry. **36**: 1983—1964

Method of and apparatus for ultrasonically testing butt welds. Hans Bincer. **36**: 1244—1964

Mounting for ultrasonic resonator rod. William G. Sielaff. **36**: 808—1964

Sonic tester. Norman W. Schubring. **36**: 1983—1964

Sonic treating apparatus. James W. McAuley. **36**: 1244—1964

Sonic welder. Jack B. Cooper. **36**: 1244—1964

Spectrometer. Adolph H. Rosenthal. **36**: 1785—1964

Support for workpiece to be subjected to vibratory energy. James Byron Jones and Nicholas Maropis. **36**: 1612—1964

Transducer. Robert J. Schliekelmann, Dick H. van Graas, and Antonius van Poppelen. **36**: 1612—1964

Ultrasonic apparatus. Jerome H. Lemelson. **36**: 1982—1964

Ultrasonic apparatus for examining the interior of solid bodies. Jean-Jacques Renaut and Jacques Dory. **36**: 1983—1964

Ultrasonic cleaning machine. Paul R. Gley. **36**: 2283—1964

Ultrasonic data converter. Paul W. Woo. **36**: 2283—1964

Ultrasonic inspection apparatus. John V. Cowan. **36**: 1984—1964

Ultrasonic inspection apparatus. Charles G. McClure. **36**: 1612—1964

Ultrasonic test apparatus. Robert S. M. Moffatt and Kenneth Storer. **36**: 1005—1964

Ultrasonic testing. George Andrew Douglas Gordon, Harold William Taylor, and John Malcolm Lester Wood. **36**: 1983—1964

Ultrasonic testing apparatus. Donald C. Erdman. **36**: 1984—1964

Ultrasonic transducer. Raymond E. Sansom. **36**: 1611—1964

Ultrasonic vehicle detector. Norman A. Bolton. **36**: 1244—1964

Ultrasonic welding. Lewis Balamuth, Arthur Kuris, and Claus Kleesattel. **36**: 2283—1964

Ultrasonic welding. Arthur Kuris, Lewis Balamuth, and Claus Kleesattel. **36**: 1983—1964

Welding method employing ultrasonic energy. Joseph M. Hill. **36**: 1244—1964

Book Reviews

Ultrasonic Delay Lines. C. F. Brockelsby, J. S. Palfreeman, and R. W. Gibson. (Reviewed by David L. Arenberg.) **36**: 1234—1964

News

New types of ultrasonic transducers operated in 100- to 1000-Mc/sec range. **36**: 1226—1964

10.4 **Gases, Ultrasonic Velocity, Dispersion, Absorption. (See also 11.3.)**

Papers

Absorption of sound in air below 1000 cps. Cyril M. Harris and W. Tempest. **36**: 2390—1964

Combined effect of shear viscosity, thermal conduction, and thermal relaxation on acoustic propagation in linear-molecule ideal gases. James H. Connolly. **36**: 2374—1964

Ultransonic absorption and dispersion in monatomic gases. R. H. Enns. **36**: 2382—1964

Velocity of sound measurements in high-pressure steam. James Woodburn. **36**: 1918—1964

Letters to the Editor

Absorption of sound in oxygen/water mixtures. Cyril M. Harris and W. Tempest. **36**: 2416—1964

Sound absorption and velocity in water vapor. James W. L. Lewis and F. Douglas Shields. **36**: 1593—1964

Ultrasonic attenuation and velocity in heavy water vapor. A. Law and R. B. Lindsay. **36**: 601—1964

Abstracts

Sound propagation in two-phase fluids. Henry B. Karplus and J. Michael Clinch. **36**: 1040—1964

Ultrasonic impedance matching from solids to gases. L. C. Lynnworth. **36**: 1999—1964

10.5 **Liquids, Ultrasonic Velocity, Dispersion, Absorption. (See also 13.2 and 13.3.)**

Papers

Amplitude of P-head waves. R. J. Donato. **36**: 19—1964

Determination of the propagation constants for ultrasonic waves in melting and molten polyethylene. R. K. Eby. **36**: 1485—1964

Experimental determination of the freefield sound speed in water. Werner G. Neubauer and Louis R. Dragonette. **36**: 1685—1964

Head waves from liquid layers. R. J. Donato. **36**: 26—1964

Propagation of acoustic transients in absorbing and relaxing liquids. E. F. Carome, P. A. Fleury, and W. J. Wagner. **36**: 2368—1964

Speed of sound in four primary alcohols as a function of temperature and pressure. Wayne Wilson and David Bradley. **36**: 333—1964

Ultrahigh-frequency ultrasonic absorption cell. Joseph L. Hunter and Henry D. Dardy. **36**: 1914—1964

Ultrasonic absorption in water at finite amplitudes. R. P. Barnes, Jr., and Robert T. Beyer. **36**: 1371—1964

Letters to the Editor

Temperature coefficients of sound velocity in ethyl alcohol. Wayne Wilson. **36**: 398—1964

Abstracts

Classical ultrasonic absorption in liquid gallium. Joseph L. Hunter and Kenneth S. Hovan. **36**: 1040—1964

On conformational analysis and the ultrasonic relaxation in methyl cyclohexane. J. E. Piercy. **36**: 1040—1964

Reflections from lossy media. J. E. White. **36**: 1990—1964

Sound propagation in two-phase fluids. Henry B. Karplus and J. Michael Clinch. **36**: 1040—1964

Temperature and pressure dependence of the free volume of liquid glycerol. Warren M. Slie and Theodore A. Litovitz. **36**: 1040—1964

Ultrasonic relaxation in the study of the rotational isomers of iso-propyl formate. S. B. Subrahmanyam and J. E. Piercy. **36**: 1040—1964

10.6 **Solids, Ultrasonic Velocity, Dispersion, Absorption**

Papers

Attenuation of guided waves in isotropic viscoelastic materials. G. A. Coquin. **36**: 1074—1964

Diffraction of ultrasound radiating into an elastically anisotropic medium. Emmanuel P. Papadakis. **36**: 414—1964

Distribution of losses in longitudinally excited vibrators. R. W. Benson and J. R. Chapman. **36**: 1479—1964

Generation and reception of elastic waves via a plane boundary. A. Lutsch and G. J. Kühn. **36**: 428—1964

Numerical evaluation of the ultrasonic attenuation in metals as a function of the magnetic field. B. P. Shah and Paul H. E. Meijer. **36**: 327—1964

Propagation of acoustic transients in water. E. F. Carome, P. E. Parks, and S. J. Mraz. **36**: 946—1964

Ultrasonic measurement of elastic moduli at elevated temperatures, using momentary contact. E. H. Carnevale, L. C. Lynnworth, and G. S. Larson. **36**: 1678—1964

Ultrasonic-wave propagation in pure silicon and germanium. Warren P. Mason and T. B. Bateman. **36**: 644—1964

Viscoelastic constants of a short-chain polymer. J. L. Hunter, C. J. Montrose, and J. H. Shively. **36**: 953—1964

Letters to the Editor

Longitudinal-wave ultrasonic measurements in iron up to 400°C. Arthur Edson Lord, Jr. **36**: 2336—1964

Transducer-thickness effects in measuring ultrasonic velocities. E. W. Kammer. **36**: 1594—1964

Abstracts

Effective elastic coefficients for wave propagation in strained elastic crystals. R. N. Thurston. **36**: 1041—1964

Elastic properties of solids at high pressure and temperature. Darrell S. Hughes. **36**: 1990—1964

Reflections from lossy media. J. E. White. **36**: 1990—1964

Relaxation in polyethylene: orientation of lamellar crystals. R. K. Eby and J. P. Colson. **36**: 1041—1964

Revised grain-scattering formulas and tables. Emmanuel P. Papadakis. **36**: 1019—1964

Sound velocity in stressed crystals and third-order elastic coefficients. K. Brugger and R. N. Thurston. **36**: 1041—1964

Transmission of high-frequency acoustic waves through an absorbing plate immersed in fluid. G. J. B. Crawford. **36**: 1990—1964

Ultrasonic determination of elastic moduli to 2000°C, using momentary contact. E. H. Carnevale, L. C. Lynnworth, and G. S. Larson. **36**: 1999—1964

Ultrasonic spectroscopy of steel. Otto R. Gericke. **36**: 1019—1964

Subtitles

Ultrasonic attenuation in solids. Otto R. Gericke. **36**: 319—1964

Ultrasonic velocity in solids. G. W. McMahon. **36**: 87—1964

News

Lamb waves—a sensitive nondestructive testing tool. **36**: 401—1964

10.9 **Biological Effects of Ultrasonic Waves**

Papers

Viscoelastic constants of a short-chain polymer. J. L. Hunter, C. J. Montrose, and J. H. Shively. **36**: 953—1964

Letters to the Editor

Augmentation of bactericidal action of germicides with ultrasound. Edward O. Shaner. **36**: 2238—1964

News

Symposium on ultrasonic diagnosis in ophthalmology. **36**: 980—1964

10.10 **Ultrasonic Relaxation Processes in Solids, Liquids, and Gases**

Papers

Determination of the propagation constants for ultrasonic waves in melting and molten polyethylene. R. K. Eby. **36**: 1485—1964

Ultrasonic-wave propagation in pure silicon and germanium. Warren P. Mason and T. B. Bateman. **36**: 644—1964

Viscoelastic constants of a short-chain polymer. J. L. Hunter, C. J. Montrose, and J. H. Shively. **36**: 953—1964

Abstracts

On conformational analysis and the ultrasonic relaxation in methyl cyclohexane. J. E. Piercy. **36**: 1040—1964

Relaxation in polyethylene: orientation of lamellar crystals. R. K. Eby and J. P. Colson. **36**: 1041—1964

Sound propagation in two-phase fluids. Henry B. Karplus and J. Michael Clinch. **36**: 1040—1964

Temperature and pressure dependence of the free volume of liquid glycerol. Warren M. Slie and Theodore A. Litovitz. **36**: 1040—1964

Ultrasonic relaxation in the study of the rotational isomers of iso-propyl formate. S. V. Subrahmanyam and J. E. Piercy. **36**: 1040—1964

11 **RADIATION AND SCATTERING**

11.1 **General, Unclassified**

Papers

Amplitude of P-head waves. R. J. Donato. **36**: 19—1964

Approximate transient solutions for the coupled equations of thermoelasticity. Jan D. Achenbach. **36**: 10—1964

Backscattering of sound from the sea surface. M. Schulkin and R. Shaffer. **36**: 1699—1964

Head waves from liquid layers. R. J. Donato. **36**: 26—1964

Book Reviews

Physical Acoustics. Volume I, Part A: Methods and Devices. Warren P. Mason, editor. (Reviewed by Harry F. Olson. **36**: 1751—1964

Sound and Ultrasound Waves in Air, Water, and Solid Bodies (Zvukovye i ul'trazukovye volny v vozdukhe, vode, i tverdykh telakh). V. A. Krasil'nikov. (Reviewed by Joseph L. Hunter). **36**: 1608—1964

Vibrations and Waves. R. V. Sharman. (Reviewed by Carl E. Adams.) **36**: 1233—1964

Waves and Oscillations. R. A. Waldron. (Reviewed by Malcolm C. Henderson.) **36**: 1752—1964

11.1.5 Analogies

Papers

Acoustic bulk parameters of random volume distributions of small scatterers. Victor Twersky. **36**: 1314—1964

Subtitles

Analogies. John E. Anderson. **36**: 812—1964

Analogies. A. R. Ingles. **36**: 819—1964

11.2 Reflection, Refraction, Diffraction, and Interference of Sound Waves

Papers

Acoustic bulk parameters of random volume distributions of small scatterers. Victor Twersky. **36**: 1314—1964

Acoustic field of a circular plane piston. A. O. Williams, Jr. **36**: 2408—1964

Acoustic rays in an ocean with heat source or thermal-mixing zone. Hans J. Lugt and Peter Ugincius. **36**: 689—1964

Acoustic wave motion along a periodic surface. M. K. Miller. **36**: 2143—1964

Analysis of echoes from a hollow metallic sphere in water. Robert Hickling. **36**: 1124—1964

Diffraction constants of acoustic transducers. T. A. Henriquez. **36**: 267—1964

Diffraction of ultrasound radiating into an elastically anisotropic medium. Emmanuel P. Papadakis. **36**: 414—1964

Effect of pressure reduction and temperature variation on the performance of a double form of Helmholtz resonator. A. R. Ingles. **36**: 816—1964

Generation and reception of elastic waves via a plane boundary. A. Lutsch and G. J. Kühn. **36**: 428—1964

Hydroacoustic scattering from a pair of fluid spheres. G. C. Knollman and J. J. Hartog. **36**: 521—1964

Low-frequency approximations for scattering by penetrable elliptic cylinders. James E. Burke. **36**: 2059—1964

Measurements of backscattering from the sea surface. R. M. Richter. **36**: 864—1964

Model of a rough boundary as a backscatterer of wave radiation. Robert B. Patterson. **36**: 1150—1964

Perception of music heard via interfering paths. Theodore J. Schultz and B. G. Watters. **36**: 897—1964

Scattering of elastic waves by small inhomogeneities. L. Knopoff and J. A. Hudson. **36**: 338—1964

Spectral broadening of acoustic reverberation in Doppler-shift fluid flowmeters. P. S. Green. **36**: 1383—1964

Symmetry of energy-transfer ratios for elastic waves at a boundary between two media. G. J. Kühn. **36**: 423—1964

Underwater backscattering strengths of Arctic pack ice. A. R. Milne. **36**: 1551—1964

Vertical coherence of explosive reverberation. R. J. Urick and G. R. Lund. **36**: 2164—1964

Wave propagation in a medium with random, spheroidal inhomogeneities. G. C. Knollman. **36**: 681—1964

Letters to the Editor

Backscatter of sound from the sea bottom. C. C. Eaglesfield. **36**: 1217—1964

Computed pressure-time waveforms for an impulsive source near a fluid/two-layer-solid interface. F. R. Spitznogle and E. G. McLeroy. **36**: 972—1964

Derivative of travel time with respect to source angle for a layer of constant-velocity gradient. Arnold W. Novick. **36**: 1221—1964

Doppler shift of sonar backscatter from the sea surface. R. H. Mellen. **36**: 1395—1964

Abstracts

Approximation to the diffraction of sound by a circular aperture in a rigid wall of finite thickness. George P. Wilson and Walter W. Soroka. **36**: 1023—1964

Circumferential waves in a gapped cylinder. T. G. Goldsberry and C. W. Horton. **36**: 2000—1964

Diffraction and interaural delay of a progressive sound wave caused by the human head. B. B. Bauer and E. Torick. **36**: 1993—1964

Diffraction of a plane compressional wave by a spherical cavity in an elastic medium. Gordon C. K. Yeh. **36**: 1009—1964

Diffraction of sound by an array of rectangular reflective panels. R. W. Leonard, L. P. Delsasso, and V. O. Knudsen. **36**: 1010—1964

Interference patterns in reverberant sound fields, II. Richard V. Waterhouse and Richard K. Cook. **36**: 2000—1964

Measurement of high-Q resonances in liquid-filled spheres. Murray Simon. **36**: 2000—1964

Measurement of the transmission loss of finite depth of circular apertures. George P. Wilson. **36**: 1023—1964

Multiple scattering of waves by a forest. T. F. W. Embleton. **36**: 1009—1964

New method of deriving the reflection coefficient for a fluid layer. Mark Harrison. **36**: 1039—1964

Phase variation of acoustic surface waves on a periodic surface. M. K. Miller. **36**: 2000—1964

Principles of ultrasonic imaging. Donald S. Moseley. **36**: 2017—1964

Pulse propagation in cylinders at the lower ultrasonic frequencies. James N. Lange. **36**: 2000—1964

Recent approaches to echo-structure theory. A. Freedman. **36**: 2000—1964

Revised grain-scattering formulas and tables. Emmanuel P. Papadakis. **36**: 1019—1964

Scattering of plane acoustic waves by arrays. Mary L. Harbold and Bruce Steinberg. **36**: 1010—1964

Sound shadow cast by head and ears. J. D. Harris. **36**: 1049—1964

Subtitles

Interference of sound waves. Theodore J. Schultz and B. G. Watters. **36**: 891—1964

11.3 Velocity and Attenuation of Sound Waves. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)

Papers

Absorption of sound in mixtures of oxygen and water vapor. R. George Harlow and Ronald Kitching. **36**: 1100—1964

Acoustic bulk parameters of random volume distributions of small scatterers. Victor Twersky. **36**: 1314—1964

Attenuation of acoustic waves in dilute emulsions and suspensions. Joseph C. F. Chow. **36**: 2395——1964

Collective sound mode in a two-component fluid. Richard L. Liboff. **36**: 661—1964

Covariance of noise in attenuating media. W. S. Liggett, Jr., and M. J. Jacobson. **36**: 1183—1964

Experimental determination of the freefield sound speed in water. Werner G. Neubauer and Louis R. Dragonette. **36**: 1685—1964

Generation and reception of elastic waves via a plane boundary. A. Lutsch and G. J. Kühn. **36**: 428—1964

Plate damping due to thickness deformations in attached viscoelastic layers. Eric E. Ungar and Edward M. Kerwin, Jr. **36**: 386—1964

Propagation of axisymmetric waves in a circular semiinfinite elastic rod. R. K. Kaul and J. J. McCoy. **36**: 653—1964

Propagation of sound across audience seating. Theodore J. Schultz and B. G. Watters. **36**: 885—1964

Scattering of elastic waves by small inhomogeneities. L. Knopoff and J. A. Hudson. **36**: 338—1964

Spherical waves in viscoelastic media. T. M. Lee. **36**: 2402—1964

Thermoviscous attenuation of plane, periodic, finite-amplitude sound waves. David T. Blackstock. **36**: 534—1964

Ultrasonic measurement of elastic moduli at elevated temperatures, using momentary contact. E. H. Carnevale, L. C. Lynnworth, and G. S. Larson. **36**: 1678—1964

Velocity of sound measurements in high-pressure steam. James Woodburn. **36**: 1918—1964

Letters to the Editor

Derivative of travel time with respect to source angle for a layer of constant-velocity gradient. Arnold W. Novick. **36**: 1221—1964

Sound absorption and velocity in water vapor. James W. L. Lewis and F. Douglas Shields. **36**: 1593—1964

Use of Stoneley waves to determine the shear velocity in ocean sediments. H. P. Bucker, J. A. Whitney, and D. L. Keir. **36**: 1595—1964

Abstracts

Analog-computer investigation of velocity transformers. L. T. Russell. **36**: 1999—1964

Effective elastic coefficients for wave propagation in strained elastic crystals. R. N. Thurston. **36**: 1041—1964

Elastic properties of solids at high pressure and temperature. Darrell S. Hughes. **36**: 1990—1964

Langmuir probe as an acoustic detector in an ionized gas. Kenneth W. Gentle and Uno Ingard. **36**: 1999—1964

Propagation of acoustic ion waves in a weakly ionized gas. G. M. Sessler. **36**: 1999—1964

Revised grain-scattering formulas and tables. Emmanuel P. Papadakis. **36**: 1019—1964

Sound propagation in two-phase fluids. Henry B. Karplus and J. Michael Clinch. **36**: 1040—1964

Sound velocity in stressed crystals and third-order elastic coefficients. K. Brugger and R. N. Thurston. **36**: 1041—1964

Transmission of high-frequency acoustic waves through an absorbing plate immersed in fluid. G. J. B. Crawford. **36**: 1990—1964

Ultrasonic spectroscopy of steel. Otto R. Gericke. **36**: 1019—1964

11.4 Waves in Bounded Media

Papers

Acoustic impedance in a rigid-walled cylindrical sound channel terminated at both ends with active transducers. Louis G. Beatty. **36**: 1081—1964

Acoustic wave motion along a periodic surface. M. K. Miller. **36**: 2143—1964

Effect of a slightly irregular boundary on the coherence of waveguide propagation. C. S. Clay. **36**: 833—1964

Method of perturbation applied to the vibration problem of a circular membrane of varying density. Ratneswar Sen Gupta and Ranjit Ghosh. **36**: 1118—1964

Normal-mode sound propagation in shallow water. H. P. Bucker. **36**: 251—1964

Normal vibration frequencies of a stiff piano string. Harvey Fletcher. **36**: 203—1964

Propagation of axisymmetric waves in a circular semiinfinite elastic rod. R. K. Kaul and J. J. McCoy. **36**: 653—1964

Simple method for observing audiofrequency resonances and sound beams in crystal. Edwin R. Fitzgerald. **36**: 2086—1964

Torsionally resonant amplitude transformers for high magnification. E. Eisner. **36**: 1—1964

Validity of thin-plate theory in dynamic viscoelasticity. M. A. Biot and F. V. Pohle. **36**: 1110—1964

Vibrations of orthotropic, thick, cylindrical shells. I. Mirsky. **36**: 41—1964

Letters to the Editor

Comments on "Radiation impedance of a source near reflectors" by R. V. Waterhouse. George C. Maling, Jr. **36**: 781—1964

Reply to Dr. Maling's "Comments on 'Radiation impedance of a source near reflectors' by R. V. Waterhouse." Richard V. Waterhouse. **36**: 783—1964

Abstracts

Absorption cross section of a pipe organ. A. H. Benade. **36**: 1025—1964

Phase variation of acoustic surface waves on a periodic surface. M. K. Miller. **36**: 2000—1964

Taut-wire delay lines. George H. Ashley. **36**: 1034—1964

Errata

Normal vibration frequencies of a stiff piano string [J. Acoust. Soc. Am. **36**, 203–209 (1964)]. Harvey Fletcher. **36**: 1214—1964

11.5 Radiation from Vibrating Objects in Air and Other Gases. Acoustic Impedance. Sources of Sound. (See also 5.3, 12.3z, and 13.7.)

Papers

Acoustic field of a circular plane piston. A. O. Williams, Jr. **36**: 2408—1964

Acoustic power radiated by an infinite plate excited by a concentrated moment. William Thompson, Jr., and J. V. Rattayya. 36: 1488—1964
Acoustic properties of fluid-filled chambers at infrasonic frequencies in the absence of convection. Henry Gerber. 36: 1427—1964
Mutual-radiation impedance and nearfield pressure for pistons on a cylinder. Joshua E. Greenspon and Charles H. Sherman. 36: 149—1964
Mutual radiation impedance of square and rectangular pistons in a rigid infinite baffle. Elizabeth M. Arase. 36: 1521—1964
On flow fields driving a contiguous acoustic field. Alan Powell. 36: 830—1964
Oscillating pressures within a cylindrical chamber that has a circular piston in one end wall. Donald L. Lansing, Charles E. Watkins, and George T. Kantarges. 36: 2222—1964
Propagation of acoustic transients in water. E. F. Carome, P. E. Parks, and S. J. Mraz. 36: 946—1964
Radiation properties of cylindrical shells. Jerome E. Manning and Gideon Maidanik. 36: 1691—1964
Sound radiation from vibrating surfaces. George Chertock. 36: 1305—1964
Wave propagation in a medium with random, spheroidal inhomogeneities. G. C. Knollman. 36: 681—1964

Letters to the Editor

Kramers–Kronig or dispersion relations in acoustics. Visvaldis Mangulis. 36: 211—1964
Pressure on a vibrating circular piston in an infinite baffle. Visvaldis Mangulis. 36: 1734—1964
Relation between the radiation impedance, pressure in the far field, and baffle impedance. Visvaldis Mangulis. 36: 212—1964
Restrictions in Pachner's analyses for determination of the farfield directivity function from nearfield measurements. P. W. Smith, Jr. 36: 1966—1964

Abstracts

Characteristics of noise generated by an electropneumatic transducer. John J. Van Houten and Walter T. Fiala. 36: 1036—1964
Coupling of sound and panel vibration below the critical frequency. P. W. Smith, Jr. 36: 1023—1964
Internal sound in a cylindrical shell, due to an external random pressure field. Ghassan R. Khabbaz. 36: 2013—1964
Measurement of noise radiated by boundary-layer-excited panels. Lucio Maestrello. 36: 2012—1964
On the mechanism of the Hartmann whistle. T. J. B. Smith and Alan Powell. 36: 1018—1964
Point-jet compressed-gas transducer. Stanley R. Rich. 36: 1018—1964
Response of anisotropic cylindrical shells due to local acoustic pressure. John C. Yao. 36: 2013—1964
Studies of the vortex-whistle periodic flow. R. C. Chanaud. 36: 1018—1964

11.6 Wave Propagation in Tubes

Papers

Absorption of sound in mixtures of oxygen and water vapor. R. George Harlow and Ronald Kitching. 36: 1100—1964
Acoustical-impedance characteristics of sintered stainless steel. John E. Anderson. 36: 811—1964
Acoustic impedance in a rigid-walled cylindrical sound channel terminated at both ends with active transducers. Louis G. Beatty. 36: 1081—1964
Effect of pressure reduction and temperature variation on the performance of a double form of Helmholtz resonator. A. R. Ingles. 36: 816—1964
Excitation of a circular cylindrical cavity by a circular waveguide. C. Bjerke and J. Van Bladel. 36: 1095—1964
Excitation of a resonant cavity by ducts of small cross-sectional dimensions. J. Van Bladel. 36: 1090—1964
Transmission of sound through a stretched ideal membrane. Nicholas Romilly. 36: 1104—1964

Abstracts

Experimental and theoretical investigation of the sound field of a corrugated acoustic waveguide. J. D. Jones. 36: 2010—1964

11.7 Mathematical Theory of Wave Propagation. Ray Acoustics. (See also 11.1.5.)

Papers

Acoustic bulk parameters of random volume distributions of small scatterers. Victor Twersky. 36: 1314—1964
Acoustic rays in an ocean with heat source or thermal-mixing zone. Hans J. Lugt and Peter Ugincius. 36: 689—1964
Acoustic wave motion along a periodic surface. M. K. Miller. 36: 2143—1964
Amplitude of P-head waves. R. J. Donato. 36: 19—1964
Analog and digital analysis methods for determining phase relationships between complex acoustical signals. Robert D. Collier and Agnes C. Summers. 36: 2080—1964
Approximate transient solutions for the coupled equations of thermoelasticity. Jan D. Achenbach. 36: 10—1964
Attenuation of acoustic waves in dilute emulsions and suspensions. Joseph C. F. Chow. 36: 2395—1964
Attenuation of guided waves in isotropic viscoelastic materials. G. A. Coquin. 36: 1074—1964
Collective sound mode in a two-component fluid. Richard L. Liboff. 36: 661—1964
Correlation of amplitude and phase fluctuations for wave propagation in a medium with random, spheroidal inhomogeneities. G. C. Knollman. 36: 2306—1964
Diffraction of ultrasound radiating into an elastically anisotropic medium. Emmanuel P. Papadakis. 36: 414—1964
Electromagnetic reflection from sound waves. II. Hans J. Schmitt and Tai Tsun Wu. 36: 437—1964
Geometrical theory of elastic surface-wave excitation and propagation. Joseph B. Keller and Frank C. Karal, Jr. 36: 32—1964
Hydroelastic solution of the sloshing of a liquid in a cylindrical tank. Pravin G. Bhuta and Leslie R. Koval. 36: 2071—1964
Investigations on the vibrations of grillages and other simple beam structures. Manfred A. Heckl. 36: 1335—1964
Low-frequency approximations for scattering by penetrable elliptic cylinders. James E. Burke. 36: 2059—1964
On the autocorrelation of random inhomogeneities. Craig Comstock. 36: 1534—1964
Propagation of axisymmetric waves in a circular semiinfinite elastic rod. R. K. Kaul and J. J. McCoy. 36: 653—1964

Rheological-model concept. William C. Sperry. 36: 376—1964

Scattering of elastic waves by small inhomogeneities. L. Knopoff and J. A. Hudson. 36: 338—1964

Spherical waves in viscoelastic media. T. M. Lee. 36: 2402—1964

Spreading loss of sound in an inhomogeneous medium. G. Anderson, R. Gocht, and D. Sirota. 36: 140—1964

Symmetry of energy-transfer ratios for elastic waves at a boundary between two media. G. J. Kühn. 36: 423—1964

Wave propagation in a medium with random, spheroidal inhomogeneities. G. C. Knollman. 36: 681—1964

Letters to the Editor

Generation of circularly polarized transverse elastic waves. Norman G. Einspruch. 36: 971—1964

Abstracts

Radiation field of a symmetrically oscillating two-dimensional cavity flow. Patrick Leehey. 36: 1044—1964

Ray-tracing program for computing transmission-loss contours. A. B. Norris. 36: 1015—1964

Transient response of a layered medium with tilted interfaces. Darbari L. Sharma. 36: 1990—1964

Underwater-sound ray and refractive-anomaly plots made with an analog computer. John P. Beam. 36: 1015—1964

11.8 Physical Effects of Sound. (See also 12.11.)

Papers

Approximate transient solutions for the coupled equations of thermoelasticity. Jan D. Achenbach. 36: 10—1964

Attenuation of acoustic waves in dilute emulsions and suspensions. Joseph C. F. Chow. 36: 2395—1964

Collective sound mode in a two-component fluid. Richard L. Liboff. 36: 661—1964

Electromagnetic reflection from sound waves. II. Hans J. Schmitt and Tai Tsun Wu. 36: 437—1964

Abstracts

Experimental studies of controlled cavitation. S. D. Howkins. 36: 1009—1964

Predicting vibratory response of circuit boards located inside an electronic package due to a reverberant acoustic field by energy methods. John H. Putukian. 36: 1051—1964

11.9 Sounds in the Atmosphere

Abstracts

Atmospheric infrasonic-pressure variations. William C. Richie and E. L. Hixson. 36: 1990—1964

Investigation of sound propagation in urban areas. Francis N. Wiener, Charles I. Malme, and Creighton M. Gogos. 36: 1035—1964

Propagation of low-frequency sound near the earth's surface. Richard N. Tedrick. 36: 1991—1964

Scattering of sound by atmospheric turbulence: application to remote wind-velocity measurement. P. A. Bricout and G. Kelton. 36: 1035—1964

Patents

Sonic atomizer for liquids. Robert J. Lang. 36: 1612—1964

12 MECHANICAL VIBRATIONS AND SHOCK. (See also 5., 11., and 16.)

12.1 General, Unclassified

Papers

Dilatation constants and complex ratio from forced vibrations of a free viscoelastic sphere. T. M. Lee. 36: 458—1964

New method for the accurate standardization of mechanical oscillations of small amplitude. J. L. Goldberg. 36: 1922—1964

Simple method for observing audiofrequency resonances and sound beams in crystals. Edwin R. Fitzgerald. 36: 2086—1964

Abstracts

Interaction between a spacecraft and soil during impact. Lymon C. Reese. 36: 1995—1964

Internal sound in a cylindrical shell, due to an external random pressure field. Ghassan R. Khabbaz. 36: 2013—1964

Vibration and acoustics facilities at manned spacecraft center. G. Griffith and R. Wren. 36: 1995—1964

Book Reviews

Use in Industry of Elasticity Measurements in Metals with the Help of Mechanical Vibrations. Notes on Applied Science No. 30, National Physical Laboratory. G. Bradfield. (Reviewed by Warren P. Mason.) 36: 1233—1964

Vibrations and Waves. R. V. Sharman. (Reviewed by Carl E. Adams.) 36: 1233—1964

News

Air bearings for electrodynamic vibrators. 36: 2245—1964

MIT offers a special summer program on noise and vibration reduction. 36: 610—1964

12.3 Instruments and Apparatus Relating to Vibration and Shock. (See also 5.3, 5.4, 5.9, 5.21.)

Papers

Dilatationless circumferential modes of vibration of a ring. C. K. Liu and H. L. Langhaar. 36: 354—1964

Experimental study of dilatational- versus distortional-straining action in material-damping production. T. J. Mentel and S. H. Chi. 36: 357—1964

New method for the accurate standardization of mechanical oscillations of small amplitude. J. L. Goldberg. 36: 1922—1964

Rheological-model concept. William C. Sperry. 36: 376—1964

Patents

Vibration analyzing system. Alan Broder and Henry H. Wakeland. 36: 634—1964

Vibration apparatus for testing articles. Robert G. Rowe. 36: 634—1964

12.3f Mechanical Filters. (See also 5.4.)

Papers

Steady-state behavior of the dynamic absorber—addendum. J. C. Snowdon. 36: 1121—1964

Patents

Butt joint for unweldable vibratory bodies. Günther Reuther. 36: 1983—1964

Mechanical filter. Seiichi Honda and Yuzo Nakazawa. **36**: 635—1964
Sonic cleaning of dust filters. Walter O. Vedder and William F. Gibby. **36**: 2284—1964

12.3i **Vibration Isolators, Attenuators, and Dampers. (See also 2.11 and 5.21.)**

Papers
Dynamic absorbers applied to a bar that has solid damping. V. H. Neubert. **36**: 673—1964
Plate damping due to thickness deformations in attached viscoelastic layers. Eric E. Ungar and Edward M. Kerwin, Jr. **36**: 386—1964
Random vibration of an oscillator with nonlinear damping. Stephen H. Crandall, Ghassan R. Khabbaz, and Jerome E. Manning. **36**: 1330—1964
Steady-state behavior of the dynamic absorber—addendum. J. C. Snowdon. **36**: 1121—1964
Theoretical and experimental results on active vibration dampers. T. H. Rockwell and J. M. Lawther. **36**: 1507—1964
Thermoelastic dissipation in thickness-shear and flexural vibrations of AT-cut quartz plates. J. Tasi. **36**: 1929—1964

Abstracts
Application of digital-computer techniques to the study of the impact dynamics of lunar-landing vehicles. W. C. Walton, Jr., B. J. Durling, and H. W. Leonard. **36**: 1995—1964
Balancing flexible rotors. R. A. Eubanks and Douglas Muster. **36**: 1020—1964
Effect of end constraints on the damping of laminated beams. R. A. DiTaranto and W. Blasingame. **36**: 2004—1964
Energy dissipation during impact. E. A. Ripperger. **36**: 1995—1964
Experimental investigation of large helical coil springs for ground-shock attenuation. Francis Kirschner and Paul Baratoff. **36**: 1995—1964
Generalized matrix method for the design and analyses of vibration isolation systems. Leonard E. Smollen. **36**: 1020—1964
Investigation of structure-borne active vibration dampers. T. H. Rockwell. **36**: 2004—1964
Wave effects in rubber antivibration mountings. J. C. Snowdon. **36**: 2003—1964

Patents
Damping pad. Games Slayter. **36**: 2284—1964
Mechanical vibration reducing apparatus. Glenn Damewood and Miles T. Hanchett. **36**: 2284—1964
Resilient mountings. Marcus Horovitz. **36**: 1426—1964
Tuned sound deadener. Hugh A. McPherson, II. **36**: 406—1964
Vibration damper. Albert H. Dall. **36**: 2284—1964
Vibration damper assembly. Ralph H. Katzenberger. **36**: 1425—1964
Vibration damping mechanism. James R. Warren. **36**: 406—1964
Vibration isolating system. John Bochan. **36**: 406—1964
Vibration isolating system. John M. Evjen. **36**: 406—1964
Vibration isolator. William F. Wingard and Raymond A. Gosselin. **36**: 1426—1964
Vibration threshold analyzing. Douglas E. Shailor. **36**: 2284—1964
Vibratory conveyor structure. Warren C. Burgess, Jr. **36**: 406—1964

12.3p **Vibration Pickups and Indicators. Calibration Equipment and Techniques. (See also 5.9, 5.18, and 13.11t.)**

Papers
Feedback vibrometer. Lawrence Fleming. **36**: 1645—1964

Abstracts
Dynamic presure-gauge calibrator. D. O. Miles. **36**: 2012—1964
Vibration-data analysis. Part I. Theoretical considerations. Julius S. Bendat. **36**: 1020—1964
Vibration-data analysis. Part II. Engineering applications. Julius S. Bendat. **36**: 1020—1964

Patents
Acceleration indicator. John F. Pasieka. **36**: 1984—1964
Acceleration measuring device. Ralph H. Severence. **36**: 639—1964
Acceleration measuring system. Henry E. Singleton. **36**: 635—1964
Acceleration measuring system. Floyd G. Steele. **36**: 639—1964
Accelerometer. Percy F. Hurt. **36**: 637—1964
Accelerometer. Alan R. Johnston. **36**: 1984—1964
Accelerometer. Clarence R. Laubenfels. **36**: 635—1964
Accelerometer. Anthony W. Orlacchio. **36**: 1984—1964
Accelerometer. Daniel S. Schwartz. **36**: 635—1964
Accelerometer. Bernard A. Shoor. **36**: 637—1964
Accelerometer. Maurits ten Bosch and Paul Lang. **36**: 1985—1964
Apparatus for measuring vibrations of a vehicle. James Sidles. **36**: 407—1964
Balanced accelerometer. James J. Morgan. **36**: 808—1964
Bender-type accelerometer. Thomas D. Smith and Harry R. Spence. **36**: 1985—1964
Damped vibrational systems. Cecil K. Stedman. **36**: 1983—1964
Dephased accelerometer. Bartram Kelley. **36**: 407—1964
Displacement ratio transmitter. Gifford A. Weber. **36**: 635—1964
Gas bearing accelerometer. Bernard Parker. **36**: 636—1964
High capacity accelerometer. Wilson Bradley, Jr. **36**: 635—1964
Inverted pendulum accelerometer. Walter P. Kistler. **36**: 1985—1964
Magneto-electric motion detecting transducer. Tullio Tognola. **36**: 1985—1964
Mechanical vibration damping system. Carlo Marchetti. **36**: 2284—1964
Self-orienting vibration detector. Warren A. Alexander. **36**: 636—1964
Shaft vibration responsive apparatus. Franklin Piltz. **36**: 407—1964
Vibration detector. Alexander B. Hildebrandt. **36**: 636—1964
Vibration responsive burglar alarm apparatus. Wilhelm A. Du Plooy. **36**: 1005—1964
Vibration responsive system for stopping motor driven machine. Peter G. Floyd. **36**: 1984—1964

12.3v **Vibration Generators. Shake Tables. (See also 5.21.)**

Letters to the Editor

Use of high-strength ceramics in vibration transducers. Earle Jones. **36**: 1215—1964

Abstracts

Impedance-tube technique for determining the fatigue properties of compliant tubes. B. J. Moskal and J. P. Frederick. **36**: 2011—1964

Simulating missile-firing acoustical environment by means of equivalent vibration. John H. Putukian. **36**: 2004—1964

Subtitles

Vibration generators. I. A. Minkarah and W. H. Hoppmann, II. **36**: 473—1964

Patents

Coil spool driver vibration test equipment. Peter H. Fowler. **36**: 1986—1964

Electrical generator of mechanical vibrations. Julien M. Loeb. **36**: 1785—1964

Vibration exciter amplitude protector sensing circuit. Theron Usher, Jr. **36**: 407—1964

Vibration-inducing apparatus. Edwin F. Peterson. **36**: 1985—1964

Vibrator. Michel Alphonse Irénée Fontaine. **36**: 248—1964

Vibratory device. William C. Elmore and Carmine F. De Prisco. **36**: 2284—1964

12.3z **Mechanical-Impedance Measurement. (See also 5.3 and 11.4.)**

Papers

Reliability of measures obtained with the Zwislocki acoustic bridge. Tom W. Tillman, Peter J. Dallos, and Thomas Kuruville. **36**: 582—1964

Letters to the Editor

Effect of contact area on mechanical-impedance measurements. Robert Plunkett. **36**: 1965—1964

Abstracts

Impedance-tube technique for determining the fatigue properties of compliant tubes. B. J. Moskal and J. P. Frederick. **36**: 2011—1964

Mechanical-impedance measurements on the human body and their use in biodynamics. Henning E. von Gierke. **36**: 1021—1964

Mechanical impedance today. R. O. Belsheim and G. M. Remmers. **36**: 1021—1964

Results of the mechanical-impedance round-robin measurements. R. O. Belsheim and G. M. Remmers. **36**: 2003—1964

Subtitles

Mechanical impedance. E. Eisner. **36**: 4—1964

Patents

System for sensing a change in an ambient condition. Stanley R. Rich. **36**: 1005—1964

12.5 **Shock. (See also 14.2 and 13.10.)**

Papers

Underwater noise produced by bullet entry. Charles B. Leslie. **36**: 1138—1964

Letters to the Editor

Energy per unit-area spectrum of the shock wave from 1-lb TNT charges exploded underwater. J. H. Stockhausen. **36**: 1220—1964

Abstracts

Numerical procedure for shock and Fourier analysis. George J. O'Hare. **36**: 1020—1964

12.7 **Theory of Vibrating Systems. (See also 11.7 and 11.1.5.)**

Papers

Acoustic power radiated by an infinite plate excited by a concentrated moment. William Thompson, Jr., and J. V. Rattayya. **36**: 1488—1964

Analog and digital analysis methods for determining phase relationships between complex acoustical signals. Robert D. Collier and Agnes C. Summers. **36**: 2080—1964

Approximate expressions for the mechanical impedance and transmissibility of beams vibrating in their transverse modes. J. C. Snowdon. **36**: 366—1964

Audiofrequency compliances of prestressed quartz, fused silica, and aluminum. Martin Greenspan and Carl E. Tschiegg. **36**: 450—1964

Axisymmetric vibrations of orthotropic cylinders. I. Mirsky. **36**: 2106—1964

Axisymmetric vibrations of thin elastic shells. C. N. DeSilva and G. E. Tersteeg. **36**: 666—1964

Coupling of sound and panel vibration below the critical frequency. P. W. Smith, Jr. **36**: 1516—1964

Dilatation constants and complex ratio from forced vibration of a free viscoelastic sphere. T. M. Lee. **36**: 458—1964

Direct mechanical determination of the dynamic response of diaphragms. D. O. Miles. **36**: 1471—1964

Distribution of losses in longitudinally excited vibrators. R. W. Benson and J. R. Chapman. **36**: 1479—1964

Dynamic absorbers applied to a bar that has solid damping. V. H. Neubert. **36**: 673—1964

Effect of bending on vibrations of spherical shells. A. Kalnins. **36**: 74—1964

Effect of boundary flexibility on the response of a string to convected random loading. Pritchard H. White. **36**: 707—1964

Elastic vibrations of paraboloidal shells of revolution. W. H. Hoppmann, II, M. I. Cohen, and V. X. Kunukkasseril. **36**: 349—1964

Experimental study of the vibrations of solid, isotropic, elastic cylinders. G. W. McMahon. **36**: 85—1964

Finite vibrations of a free rotating anisotropic membrane. J. L. Nowinski and S. R. Woodall. **36**: 2113—1964

Flexural vibrations of cylindrically aeolotropic circular plates. I. A. Minkarah and W. H. Hoppmann, II. **36**: 470—1964

Flexural vibrations of elliptical plates when transverse shear and rotary inertia are considered. W. R. Callahan. **36**: 823—1964

Flow excitation of cylindrical shells and associated coincidence effects. J. V. Rattayya and M. C. Junger. **36**: 878—1964

Free vibration of rotationally symmetric shells. A. Kalnins. **36**: 1355—1964

Generalized Hamilton's principle and variational equation of motion in nonlinear elasticity theory, with application to plate theory. Yi-Yuan Yu. 36: 111—1964

Hydroelastic solution of the sloshing of a liquid in a cylindrical tank. Pravin G. Bhuta and Leslie R. Koval. 36: 2071—1964

Initial response of a fluid-filled, elastic, circular, cylindrical shell to a shock wave in acoustic medium. L. A. Peralta and S. Raynor. 36: 476—1964

Investigations on the vibrations of grillages and other simple beam structures. Manfred A. Heckl. 36: 1335—1964

Longitudinal vibration of internally damped rods. J. C. Snowdon. 36: 502—1964

Method of perturbation applied to the vibration problem of a circular membrane of varying density. Ratneswar Sen Gupta and Ranjit Ghosh. 36: 1118—1964

New method for calculating the vibration frequencies and mode shapes for inhomogeneous beams. A. L. Greensite. 36: 446—1964

Nonlinear response of a circular membrane to sinusoidal acoustic excitation. V. A. Chobotov and R. C. Binder. 36: 59—1964

Nonstationary shot noise. Y. K. Lin. 36: 82—1964

Normal mode vibrations of systems of elastically connected parallel bars. J. M. Seelig and W. H. Hoppmann, II. 36: 93—1964

Normal vibration modes of continuous beams with distinct flexural rigidities for each span. Maarten Vet. 36: 1934—1964

On the theory of segmented electromechanical systems. Gordon E. Martin. 36: 1366—1964

On torsional oscillations in a finite circular cylinder. W. L. Wainwright. 36: 511—1964

On vibrations of spherical shells. C. Prasad. 36: 489—1964

Plate-edge admittances. Ewald Eichler. 36: 344—1964

Radial deformation of a composite piezoelectric annular disk. D. K. Sinha. 36: 1926—1964

Random excitation of a nonlinear system with tangent elasticity characteristics. G. Harold Klein. 36: 2095—1964

Random vibration of an oscillator with nonlinear damping. Stephen H. Crandall, Ghassan R. Khabbaz, and Jerome E. Manning. 36: 1330—1964

Random vibration of connected structures. Richard H. Lyon and Ewald Eichler. 36: 1344—1964

Random vibrations of a nonlinear elastic beam. Richard E. Herbert. 36: 2090—1964

Response of a simply clamped beam to vibratory forces and moments. J. C. Snowdon. 36: 495—1964

Spatial correlation in acoustic-structural coupling. Daniel J. Bozich. 36: 52—1964

Steady-state behavior of the dynamic absorber—addendum. J. C. Snowdon. 36: 1121—1964

Theoretical and experimental results on active vibration dampers. T. H. Rockwell and J. M. Lawther. 36: 1507—1964

Thermoelastic dissipation in high-frequency vibrations of crystal plates. J. Tasi and G. Herrmann. 36: 100—1964

Thermoelastic dissipation in thickness-shear and flexural vibrations of AT-cut quartz plates. J. Tasi. 36: 1929—1964

Transmission of sound through a stretched ideal membrane. Nicholas Romilly. 36: 1104—1964

Transverse vibrations of tapered cantilever beams with end loads. H. H. Mabie and C. B. Rogers. 36: 463—1964

Turning-point peculiarities in the near-resonant response of slightly tapered membrane strips. J. N. Goodier and F. B. Fuller. 36: 1491—1964

Validity of thin-plate theory in dynamic viscoelasticity. M. A. Biot and F. V. Pohle. 36: 1110—1964

Vibrations of coaxially segmented, longitudinally polarized ferroelectric tubes. Gordon E. Martin. 36: 1496—1964

Vibrations of orthotropic, thick, cylindrical shells. I. Mirsky. 36: 41—1964

Letters to the Editor

Comments on "Experimental study of the vibrations of solid, isotropic, elastic cylinders," by G. W. McMahon. Egon Pfende. 36: 1965—1964

Comments on "Preliminary investigation of the equivalence of acoustically and mechanically induced vibrations" by L. Marin and R. C. Kroeger. Paul Wang. 36: 213—1964

Method of estimating the mean-square response of a linear system with random parameters to random excitation. Pritchard H. White. 36: 1216—1964

Natural frequencies of a uniform square plate bounded by flexible beams. S. Mahalingam. 36: 1964—1964

On the estimation of the generalized force due to random pressure and on necessary modes. Alan Powell. 36: 783—1964

Some useful approximations for determining the vibration of structures excited by random pressures. Pritchard H. White. 36: 784—1964

Abstracts

Axial vibrations of a semiinfinite viscoelastic rod with external elastic constraint. W. Flügge and J. R. Hutchinson. 36: 1052—1964

Composite loss factors of selected laminated beams. W. Blasingame and R. A. DiTaranto. 36: 1052—1964

Damping due to mode coupling: a wave analysis. P. W. Smith, Jr. 36: 1052—1964

Distribution of internal friction. R. W. Benson and J. R. Chapman. 36: 1034—1964

Flexural horns. Robert W. Pyle, Jr. 36: 1034—1964

Flexural vibrations of bilaminar ceramic plates. Harry A. Schenck. 36: 2011—1964

Flexural-wave transmission properties of plate-joint systems. David S. Pallett. 36: 2004—1964

Forced vibration of a two-degree-of-freedom system with combined Coulomb and viscous damping. Gordon C. K. Yeh. 36: 1020—1964

Free vibrations of viscoelastic spheres. G. A. Coquin. 36: 1052—1964

High-Q quartz-crystal system for use in absorption measurements. Walter L. Ghering. 36: 2000—1964

Measurement of high-Q resonances in liquid-filled spheres. Murray Simon. 36: 2000—1964

Method for the analysis of free vibration of rotationally symmetric shells. A. Kalnins. 36: 1051—1964

On the damping of laminated elastic/viscoelastic plates. V. D. Azzi. 36: 1051—1964

Response of a loaded sandwich panel with mass attachments. V. I. Weingarten, M. J. Jacobson, and J. L. Preston. 36: 2013—1964

Response of anisotropic cylindrical shells due to local acoustic pressure. John C. Yao. 36: 2013—1964

Sound and vibration transmission through a rectangular double wall by statistical methods: theory and experiment. Pritchard H. White and Alan Powell. **36**: 2004—1964
Study of the flexural vibration of mass-loaded rings. T. F. Clark and D. Muster. **36**: 2004—1964
Theoretical and experimental comparison of the modes of vibration for a stiffened pressurized cylinder. Harry E. Plumblee and Fred F. Rudder. **36**: 1051—1964
Vibration-data analysis. Part I. Theoretical considerations. Julius S. Bendat. **36**: 1020—1964
Vibration-data analysis. Part II. Engineering applications. Julius S. Bendat. **36**: 1020—1964
Vibrations excited by statistically fluctuating forces. E. J. Skudrzyk. **36**: 2003—1964

12.10 Seismology. Geophysical Prospecting. Seismographs

Papers
Correlation detection in a duovelocity medium, with application to seismic disturbances. Paul W. Cooper. **36**: 1378—1964

Abstracts
Application of multichannel processing to analysis of long-range refraction seismograms. Renner B. Hofmann and Stanley J. Laster. **36**: 1990—1964
Development of seismic modeling. Franklyn K. Levin. **36**: 2008(T)—1964
First results from a long-period, ocean-bottom seismograph system. George H. Sutton. **36**: 2008(T)—1964
Geo-sound sources. A. Raymond Jordan. **36**: 2008(T)—1964
Quantitative measure of the acoustical properties of the ocean subbottom, using continuous seismic-profiling data. David D. Caulfield and Gary J. Bronson. **36**: 1994—1964
Seismological signal processing. Milo M. Backus. **36**: 2008(T)—1964
Strain seismometers. M. W. Major. **36**: 2008(T)—1964
Structure of the continental crest and upper mantle. L. C. Pakiser. **36**: 2008(T)—1964

12.11 Effect of Sound on Structures. Fatigue. (See also 11.8.)

Papers
Initial response of a fluid-filled, elastic, circular, cylindrical shell to a shock wave in acoustic medium. L. A. Peralta and S. Raynor. **36**: 476—1964
Nonlinear response of a circular membrane to sinusoidal acoustic excitation. V. A. Chobotov and R. C. Binder. **36**: 59—1964
Random excitation of a nonlinear system with tangent elasticity characteristics. G. Harold Klein. **36**: 2095—1964
Spatial correlation in acoustic-structural coupling. Daniel J. Bozich. **36**: 52—1964

Letters to the Editor
On the estimation of the generalized force due to random pressure and on necessary modes. Alan Powell. **36**: 783—1964
Some useful approximations for determining the vibration of structures excited by random pressures. Pritchard H. White. **36**: 784—1964

Abstracts
Application of the crosscorrelation technique to wall-pressure fluctuations below free shear layers and oscillating shocks. Fritz R. Krause. **36**: 1046—1964
Correlation of launch-vehicle aerodynamic noise with spacecraft flight-vibration data. Robert A. Schiffer. **36**: 1046—1964
Excitation of finite cylindrical shells by boundary-layer pressure fluctuations. M. G. Cottis and J. G. Jasonides. **36**: 1046—1964
Importance of superimposed acoustic, static, and dynamic loadings and their application to aerospace structural testing. D. P. Wilhelm. **36**: 1046—1964
Modal characteristics of composite elastic structures. Charles W. Coale. **36**: 1051—1964
Panel excitation by high-speed boundary-layer turbulence. Richard H. Lyon. **36**: 1045—1964
Panel response and its relation to the type of excitation. E. J. Richards and J. F. Wilby. **36**: 1046—1964
Predicting vibratory response of circuit boards located inside an electronic package due to a reverberant acoustic field by energy methods. John H. Putukian. **36**: 1051—1964
Response of control surface types of structure to jet noise. B. L. Clarkson. **36**: 1046—1964
Some experimental effects of curvature on response of simple panels to intense noise. Carl E. Rucker. **36**: 1046—1964
Turbulent boundary-layer pressure fluctuations over two-dimensional and narrow delta wings. E. J. Richards. **36**: 1045—1964

13 UNDERWATER SOUND

13.1 General, Unclassified

Papers
Ambient noise under Arctic-Sea ice. A. R. Milne and J. H. Ganton. **36**: 855—1964

Abstracts
Anechoic surface for underwater sound. Wilkinson Meeks. **36**: 2017—1964

Book Reviews
Acoustique sous-marine. L. Guieysse and P. Sabathé. (Reviewed by V. M. Albers.) **36**: 981—1964

News
J. Warren Horton receives Pioneers of Underwater Acoustics award. **36**: 607—1964
New underwater propagation project. **36**: 2245—1964
Saclant ASW Research Center. **36**: 1231—1964
Summer course offered at UCLA. **36**: 1397—1964
Symposium on signal processing in radar and sonar directional systems. M. I. Skolnik and C. S. Clay. **36**: 1975—1964

13.2 Propagation of Sound in Water. Attenuation. Fluctuation

Papers
Acoustic wave motion along a periodic surface. M. K. Miller. **36**: 2143—1964
Analysis of spreading loss for refracted/reflected rays in constant velocity gradient media. Melvin J. Jacobson. **36**: 2298—1964

Arctic deep-water propagation measurements. Beaumont M. Buck and Charles R. Greene. **36**: 1526—1964

Correlation of amplitude and phase fluctuations for wave propagation in a medium with random, spheroidal inhomogeneities. G. C. Knollman. **36**: 2306—1964

Correlation of 630-cps shallow-water ambient noise with wind speed and waveheight. W. S. Penhallow and F. T. Dietz. **36**: 2149—1964

Effect of a slightly irregular boundary on the coherence of waveguide propagation. C. S. Clay. **36**: 833—1964

Effect of transducer velocity on the structure of signals scattered from the ocean bottom. Burton G. Hurdle, Raymond H. Ferris, and Kenneth D. Flowers. **36**: 1936—1964

High-frequency acoustical reverberation from a rough-sea surface. C. S. Clay and H. Medwin. **36**: 2131—1964

Measurements of backscattering from the sea surface. R. M. Richter. **36**: 864—1964

Model of a rough boundary as a backscatterer of wave radiation. Robert B. Patterson. **36**: 1150—1964

Normal-mode sound propagation in shallow water. H. P. Bucker. **36**: 251—1964

On the autocorrelation of random inhomogeneities. Craig Comstock. **36**: 1534—1964

Propagation of displacement waves in the sea. L. N. Liebermann and R. A. Rasmussen. **36**: 843—1964

Propagation of explosive sound in a layered liquid. M. Mitra. **36**: 1145—1964

Reception characteristics of a linear array in a random transmission medium. Gary E. Lord and Stanley R. Murphy. **36**: 850—1964

Some deep-water sound-transmission paths south of Cyprus. Lincoln Baxter, II, Robert Brockhurst, and Earl E. Hays. **36**: 2124—1964

Spreading loss of sound in an inhomogeneous medium. G. Anderson, R. Gocht, and D. Sirota. **36**: 140—1964

Variability in acoustic output of deep explosive sources. Albert N. Guthrie and John Shaffer. **36**: 2293—1964

Vertical coherence of explosive reverberation. R. J. Urick and G. R. Lund. **36**: 2164—1964

Wave propagation in a medium with random, spheroidal inhomogeneities. G. C. Knollman. **36**: 681—1964

Wave scattering and transmission at irregular surfaces. E. Y. T. Kuo. **36**: 2135—1964

Letters to the Editor

Attenuation over RSR paths in the deep sea. R. J. Urick. **36**: 786—1964

Backscattering of explosive sound from ocean bottoms. Aaron W. Burstein and John J. Keane. **36**: 1596—1964

Derivative of travel time with respect to source angle for a layer of constant-velocity gradient. Arnold W. Novick. **36**: 1221—1964

Long-range multiple arrivals received at deep hydrophones from shots in the Gulf of Maine. John Northrop, Loring E. Tyson, and Morris A. Ransone. **36**: 215—1964

Shock-wave energy-spectrum scaling. Ermine A. Christian. **36**: 2418—1964

Use of Stoneley waves to determine the shear velocity in ocean sediments. H. P. Bucker, J. A. Whitney, and D. L. Keir. **36**: 1595—1964

Abstracts

Acoustic propagation in the Nova Scotian sound channel. J. D. Macpherson and N. O. Fothergill. **36**: 1014—1964

Axial focusing in SOFAR channel. A. O. Williams, Jr., and William Horne. **36**: 1997—1964

Calculation of the peak amplitudes of SOFAR signals. Peter Hirsch. **36**: 1998—1964

Chlorine-release test for cavitation measurements. Shih-Ping Liu. **36**: 1019—1964

Extension of the Kirchoff–Helmholtz equation. A. A. Hudimac. **36**: 1998—1964

Fluctuation correlations in randomly inhomogeneous media. G. C. Knollman. **36**: 1998—1964

Long-range shallow-water transmission measurements. K. V. Mackenzie. **36**: 1014—1964

Marine-sediment attenuation and ocean-bottom reflected sound. B. F. Cole. **36**: 1993—1964

Measurement of attenuation of 5- to 8-kc/sec sound in small samples of sea water. Palle G. Hansen. **36**: 1998—1964

On the calculation of focusing zones along the SOFAR axis. Peter Hirsch and Marcia Shear. **36**: 1015—1964

Power spectrum of array signal-gain fluctuations. Arthur Shapiro. **36**: 1998—1964

Propagation of short-wavelength acoustic waves through an inhomogeneous medium. G. R. Barnard and K. McCormack. **36**: 1998—1964

Ray-tracing program for computing transmission-loss contours. A. B. Norris. **36**: 1015—1964

Some deep-water sound-transmission paths south of Cyprus. Lincoln Baxter, II, Robert Brockhurst, and Earl E. Hays. **36**: 1015—1964

Sound attenuation between 200 and 10 000 cps measured along single paths. C. C. Leroy. **36**: 1014—1964

Underwater-sound ray and refractive-anomaly plots made with an analog computer. John P. Beam. **36**: 1015—1964

Underwater sound reflection from layered media. G. R. Barnard, J. L. Bardin, and W. B. Hempkins. **36**: 1015—1964

Subtitles

Attenuation of sound in water. Gerald A. Sabin. **36**: 172—1964

13.3 **Velocity of Sound in Water. Refraction. Doppler Effect**

Papers

Acoustic rays in an ocean with heat source or thermal-mixing zone. Hans J. Lugt and Peter Ugінčius. **36**: 689—1964

Analysis of echoes from a hollow metallic sphere in water. Robert Hickling. **36**: 1124—1964

Analysis of spreading loss for refracted/reflected rays in constant velocity gradient media. Melvin J. Jacobson. **36**: 2298—1964

Arctic deep-water propagation measurements. Beaumont M. Buck and Charles R. Greene. **36**: 1526—1964

Effect of transducer velocity on the structure of signals scattered from the ocean bottom. Burton G. Hurdle, Raymond H. Ferris, and Kenneth D. Flowers. **36**: 1936—1964

Experimental determination of the freefield sound speed in water. Werner G. Neubauer and Louis R. Dragonette. **36**: 1685—1964

Fine structure and stability of the sound channel in the ocean. Ants T. Piip. **36**: 1948—1964

Spreading loss of sound in an inhomogeneous medium. G. Anderson, R. Gocht, and D. Sirota. **36**: 140—1964

Variability in acoustic output of deep explosive sources. Albert N. Guthrie and John Shaffer. **36**: 2293—1964

Letters to the Editor

Computed pressure-time waveforms for an impulsive source near a fluid/two-layer-solid interface. F. R. Spitznogle and E. G. McLeroy. **36**: 972—1964

Derivative of travel time with respect to source angle for a layer of constant-velocity gradient. Arnold W. Novick. **36**: 1221—1964

Abstracts

Fluctuating acoustic refraction in the deep water of the Caribbean Sea. Norman W. Lord. **36**: 1043—1964

Improvements in the seismic profiler. David D. Caulfield, Hartley Hoskins, and Richard T. Nowak. **36**: 1044—1964

Precise timing of underwater sound, using phase-reversed pulses. Norman W. Lord. **36**: 1043—1964

13.4 **Reflection. Echoes. Structures for Absorbing Sound in Water**

Papers

Acoustic characteristics of underwater bottoms. J. L. Jones, C. B. Leslie, and L. E. Barton. **36**: 154—1964

Analysis of echoes from a hollow metallic sphere in water. Robert Hickling. **36**: 1124—1964

Arctic deep-water propagation measurements. Beaumont M. Buck and Charles R. Greene. **36**: 1526—1964

Effect of transducer velocity on the structure of signals scattered from the ocean bottom. Burton G. Hurdle, Raymond H. Ferris, and Kenneth D. Flowers. **36**: 1936—1964

High-frequency acoustical reverberation from a rough-sea surface. C. S. Clay and H. Medwin. **36**: 2131—1964

Measurements of backscattering from the sea surface. R. M. Richter. **36**: 864—1964

Measurements of backscattering of sound from the ocean bottom. C. M. McKinney and C. D. Anderson. **36**: 158—1964

Model of a rough boundary as a backscatterer of wave radiation. Robert B. Patterson. **36**: 1150—1964

Propagation of displacement waves in the sea. L. N. Liebermann and R. A. Rasmussen. **36**: 843—1964

Underwater backscattering strengths of Arctic pack ice. A. R. Milne. **36**: 1551—1964

Underwater sound reflection from layered media. G. R. Barnard, J. L. Bardin, and W. B. Hempkins. **36**: 2119—1964

Wave scattering and transmission at irregular surfaces. E. Y. T. Kuo. **36**: 2135—1964

Letters to the Editor

Attenuation over RSR paths in the deep sea. R. J. Urick. **36**: 786—1964

Backscattering strength of young sea ice. R. P. Chapman and H. D. Scott. **36**: 2417—1964

Backscatter of sound from the sea bottom. C. C. Eaglesfield. **36**: 1217—1964

Computed pressure-time waveforms for an impulsive source near a fluid/two-layer-solid interface. F. R. Spitznogle and E. G. McLeroy. **36**: 972—1964

Doppler shift of sonar backscatter from the sea surface. R. H. Mellen. **36**: 1395—1964

Long-range multiple arrivals received at deep hydrophones from shots in the Gulf of Maine. John Northrop, Loring E. Tyson, and Morris A. Ransone. **36**: 215—1964

Phase distortion of reflected sonar pulses. W. Abramowitz. **36**: 214—1964

Reflection of an underwater shock wave from an overlying ice layer. Robert E. Green, Jr. **36**: 603—1964

Scattering from a sinusoidal surface—a direct comparison of the results of Marsh and Uretsky. Stanley R. Murphy and Gary E. Lord. **36**: 1598—1964

Surface backscattering strengths measured over an extended range of frequencies and grazing angles. R. P. Chapman and H. D. Scott. **36**: 1735—1964

Abstracts

Acoustic properties of sediments. L. D. Hampton. **36**: 1993—1964

Correlation measurements of surface-reflected acoustic signals for several sea states. John R. Olson. **36**: 1987—1964

Effect of waveheight on surface-reflected pulse amplitudes. A. Senko and R. H. Nichols, Jr. **36**: 1987—1964

High-frequency acoustical reverberation from a rough-sea surface. C. S. Clay and H. Medwin. **36**: 1987—1964

Improvements in the seismic profiler. David D. Caulfield, Hartley Hoskins, and Richard T. Nowak. **36**: 1044—1964

Marine-sediment attenuation and ocean-bottom reflected sound. B. F. Cole. **36**: 1993—1964

Measurement and analysis of underwater acoustic backscattering from a model ocean surface. Lester R. LeBlanc and R. F. Hill. **36**: 1987—1964

Model study of signals reflected from a wind-driven surface. R. A. D'Antinio and R. F. Hill. **36**: 1044—1964

Periodic variations of the underwater ambient-noise level of biological origin. Gerald A. Clapp. **36**: 1994—1964

Reflection and scattering of sound by the sea bottom. Part I: Theory. H. W. Marsh. **36**: 2003—1964

Reflection and scattering of sound by the sea bottom. Part II: Field data. T. G. Bell. **36**: 2003—1964

Reflection and scattering of sound by the sea bottom. Part III: Model studies. C. W. Horton. **36**: 2003—1964

Reflectivity of deep sedimentary bottoms. Bruno Lallement and Paul Stangerup. **36**: 1993—1964

Statistical study of the wind-driven surface of an underwater acoustic model tank. D. E. Tetreault and R. F. Hill. **36**: 1044—1964

Studies of observed and predicted values of bottom reflectivity as a function of incident angle. F. R. Menotti, W. R. Schumacher, and S. R. Santaniello. **36**: 1993—1964

Temperature- and wind-dependent ambient noise under midwinter pack ice. A. R. Milne and J. H. Ganton. **36**: 1994—1964

Time variability of ambient-noise directionality. T. Arase, E. M. Arase, F. G. Weigle, and A. J. Perrone. **36**: 1015—1964

Underwater sound reflection from a pressure-release sinusoidal surface. G. R. Barnard, J. L. Bardin, and J. T. Cordaro. **36**: 1988—1964

Underwater sound reflection from layered media. G. R. Barnard, J. L. Bardin, and W. B. Hempkins. **36**: 1015—1964

Patents

Means for making a transducer sound absorbing pad. Forrest E. Coyle. **36**: 2441—1964

13.5 Interference. Diffraction

Papers

Analysis of echoes from a hollow metallic sphere in water. Robert Hickling. **36**: 1124—1964

Effect of a slightly irregular boundary on the coherence of waveguide propagation. C. S. Clay. **36**: 833—1964

Propagation of displacement waves in the sea. L. N. Liebermann and R. A. Rasmussen. **36**: 843—1964

Abstracts

New technique for the investigation of ocean-bottom acoustic structure. George R. Fox. **36**: 1994—1964

13.6 Scattering. Reverberation in Water

Papers

Acoustic characteristics of underwater bottoms. J. L. Jones, C. B. Leslie, and L. E. Barton. **36**: 154—1964

Backscattering of sound from the sea surface. M. Schulkin and R. Shaffer. **36**: 1699—1964

Effect of transducer velocity on the structure of signals scattered from the ocean bottom. Burton G. Hurdle, Raymond H. Ferris, and Kenneth D. Flowers. **36**: 1936—1964

High-frequency acoustical reverberation from a rough-sea surface. C. S. Clay and H. Medwin. **36**: 2131—1964

Hydroacoustic scattering from a pair of fluid spheres. G. C. Knollman and J. J. Hartog. **36**: 521—1964

Measurements of backscattering of sound from the ocean bottom. C. M. McKinney and C. D. Anderson. **36**: 158—1964

Model of a rough boundary as a backscatterer of wave radiation. Robert B. Patterson. **36**: 1150—1964

On the autocorrelation of random inhomogeneities. Craig Comstock. **36**: 1534—1964

Reception characteristics of a linear array in a random transmission medium. Gary E. Lord and Stanley R. Murphy. **36**: 850—1964

Reverberation from a deep scattering layer measured with explosive sound sources. J. R. Marshall and R. P. Chapman. **36**: 164—1964

Theoretical model of reverberation noise. Pierre Faure. **36**: 259—1964

Underwater backscattering strengths of Arctic pack ice. A. R. Milne. **36**: 1551—1964

Underwater sound reflection from layered media. G. R. Barnard, J. L. Bardin, and W. B. Hempkins. **36**: 2119—1964

Vertical coherence of explosive reverberation. R. J. Urick and G. R. Lund. **36**: 2164—1964

Wave scattering and transmission at irregular surfaces. E. Y. T. Kuo. **36**: 2135—1964

Letters to the Editor

Backscattering of explosive sound from ocean bottoms. Aaron W. Burstein and John J. Keane. **36**: 1596—1964

Backscattering strength of young sea ice. R. P. Chapman and H. D. Scott. **36**: 2417—1964

Backscatter of sound from the sea bottom. C. C. Eaglesfield. **36**: 1217—1964

Doppler shift of sonar backscatter from the sea surface. R. H. Mellen. **36**: 1395—1964

Phase distortion of reflected sonar pulses. W. Abramowitz. **36**: 214—1964

Reverberation under Arctic ice. J. R. Brown. **36**: 601—1964

Scattering from a sinusoidal surface—a direct comparison of the results of Marsh and Uretsky. Stanley R. Murphy and Gary E. Lord. **36**: 1598—1964

Surface backscattering strengths measured over an extended range of frequencies and grazing angles. R. P. Chapman and H. D. Scott. **36**: 1735—1964

Abstracts

Effect of geometry on monostatic scattering from the ocean bottom. Burton G. Hurdle and Kenneth D. Flowers. **36**: 1993—1964

High-frequency acoustical reverberation from a rough-sea surface. C. S. Clay and H. Medwin. **36**: 1987—1964

Measurement and analysis of underwater acoustic backscattering from a model ocean surface. Lester R. LeBlanc and R. F. Hill. **36**: 1987—1964

Physical theory for the reverberation observed in backscattering. R. Alfred Saenger. **36**: 1987—1964

Vertical coherence of explosive reverberation. G. R. Lund and R. J. Urick. **36**: 1015—1964

Subtitles

Scattering. Robert Hickling. **36**: 1133—1964

13.7 Radiation from Objects Vibrating under Water. Acoustical and Mechanical Impedance. (See also 5.3, 11.5, and 12.3z.)

Papers

Acoustic radiation of a cylindrical bar excited by the field of a ship propeller. S. Tsakonas, C. Y. Chen, and W. R. Jacobs. **36**: 1569—1964

Acoustic radiation of an infinite plate excited by the field of a ship propeller. S. Tsakonas, C. Y. Chen, and W. R. Jacobs. **36**: 1708—1964

Mutual-radiation impedance and nearfield pressure for pistons on a cylinder. Joshua E. Greenspon and Charles H. Sherman. **36**: 149—1964

Propagation of acoustic transients in water. E. F. Carome, P. E. Parks, and S. J. Mraz. **36**: 946—1964

Self- and mutual-radiation impedance and beam patterns for flexural disks in a rigid plane. David T. Porter. **36**: 1154—1964

Letters to the Editor
Calculation of coupling effects in Pritchard's array. Ewald Eichler. **36**: 1393—1964

Farfield-noise prediction from nearfield-spectrum measurements. Joshua E. Greenspon. **36**: 604—1964

Restrictions in Pachner's analyses for determination of the farfield directivity function from nearfield measurements. P. W. Smith, Jr. **36**: 1966—1964

Abstracts
Farfield patterns of a line array of noise sources. A. H. Lubell. **36**: 1045—1964

Novel formulation of the Helmholtz integral for calculating the acoustic field of slender axisymmetric radiators. Lawrence G. Copley. **36**: 2006—1964

Radiation field of a symmetrically oscillating two-dimensional cavity flow. Patrick Leehey. **36**: 1044—1964

13.8 Sound Generation by Liquid Motion, Bubbles, Turbulence, Splashes. (See also 13.12.)

Papers
Narrow-band investigations of the longitudinal space-time correlation function in turbulent airflow. Henry P. Bakewell, Jr. **36**: 146—1964

Underwater noise produced by bullet entry. Charles B. Leslie. **36**: 1138—1964

Abstracts
Effect of turbulence on a distant transducer. H. S. Heaps. **36**: 1998—1964

Investigation of fluid flow over flexible surfaces. Henry B. Karplus. **36**: 1044—1964

13.9 Noise in Water, Ship Noise. Flow Noise, Biological Noises

Papers
Ambient-noise directivity measurements. George R. Fox. **36**: 1537—1964

Ambient noise under Arctic-Sea ice. A. R. Milne and J. H. Ganton. **36**: 855—1964

Ambient sea noise at low frequencies in shallow water of the Scotian Shelf. C. L. Piggott. **36**: 2152—1964

Ambient-sea-noise model. Robert J. Talham. **36**: 1541—1964

Correlation of 630-cps shallow-water ambient noise with wind speed and wavelength. W. S. Penhallow and F. T. Dietz. **36**: 2149—1964

Effect of ice cover on shallow-water ambient sea noise. F. A. Payne. **36**: 1943—1964

Underwater noise produced by bullet entry. Charles B. Leslie. **36**: 1138—1964

Letters to the Editor
Arctic Ocean ambient noise. Charles R. Greene and Beaumont M. Buck. **36**: 1218—1964

Abstracts
Periodic variations of the underwater ambient-noise level of biological origin. Gerald A. Clapp. **36**: 1994—1964

Temperature- and wind-dependent ambient noise under midwinter pack ice. A. R. Milne and J. H. Ganton. **36**: 1994—1964

13.10 Underwater Macrosonics. Explosions. Distortion. (See also 14.2 and 12.5.)

Papers
Propagation of explosive sound in a layered liquid. M. Mitra. **36**: 1145—1964

Underwater noise produced by bullet entry. Charles B. Leslie. **36**: 1138—1964

Letters to the Editor
Attenuation over RSR paths in the deep sea. R. J. Urick. **36**: 786—1964

Energy per unit-area spectrum of the shock wave from 1-lb TNT charges exploded underwater. J. H. Stockhausen. **36**: 1220—1964

Long-range multiple arrivals received at deep hydrophones from shots in the Gulf of Maine. John Northrop, Loring E. Tyson, and Morris A. Ransone. **36**: 215—1964

Reflection of an underwater shock wave from an overlying ice layer. Robert E. Green, Jr. **36**: 603—1964

Shock-wave energy-spectrum scaling. Ermine A. Christian. **36**: 2418—1964

Abstracts
Airblasts generated by underwater explosions. Ira Dyer, Charles I. Malme, and Jaime R. Carbonell. **36**: 1033—1964

Energy spectra of small explosions at great depths. Ermine A. Christian and Maurice Blaik. **36**: 2006—1964

Harmonic distortion of spherical sound waves in water. Oliver H. McDaniel. **36**: 1998—1964

Pressure pulses of small explosions at great depths in the ocean. Maurice Blaik and Ermine A. Christian. **36**: 2006—1964

13.11 Instruments Relating to Underwater Sound

Papers
Digital compressed-time correlators and matched filters for active sonar. W. B. Allen and E. C. Westerfield. **36**: 121—1964

Fine structure and stability of the sound channel in the ocean. Ants T. Piip. **36**: 1948—1964

Abstracts
Classification of marine life sounds, using SCEPTRON. Leo S. Balandis. **36**: 1994—1964

Improvements in the seismic profiler. David D. Caulfield, Hartley Hoskins, and Richard T. Nowak. **36**: 1044—1964

Precise timing of underwater sound, using phase-reversed pulses. Norman W. Lord. **36**: 1043—1964

Quantitative measure of the acoustical properties of the ocean subbottom, using continuous seismic-profiling data. David D. Caulfield and Gary J. Bronson. **36**: 1994—1964

Patents
Disposable accelerometer wave buoy. Wilbur Marks, Robert G. Tuckerman, and Willis S. Campbell. **36**: 808—1964

Sonar dome. William R. Graner. **36**: 1426—1964

Sonar dome. Walter H. Greenberg. **36**: 1612—1964

Sonar dome and self-damping component thereof. John Harvey McCoy and Walter H. Greenberg. **36**: 1986—1964

Sonic simulator. Burton L. Frankel. **36**: 248—1964
Sonobuoy-bathythermograph system. Jesse J. Coop. **36**: 407—1964
Sound generator. James C. Hopkins and Owen G. Bennett. **36**: 248—1964

13.11n Navigational Instruments Using Underwater Sound. Underwater-Listening and Echo-Ranging Devices. Sonar

Papers

Variance of the bearing angle of a discrete linear-difference array in a random transmission medium. Gary E. Lord. **36**: 1545—1964

Letters to the Editor

Coupling of array elements in a nonrigid baffle. Visvaldis Mangulis. **36**: 1737—1964

Abstracts

Acoustic simulation of underwater sounds. Norman D. Miller and G. W. West. **36**: 1045—1964
Air Force Eastern Test Range underwater-sound systems. William R. Drake. **36**: 2016—1964
Anechoic surface for underwater sound. Wilkinson Meeks. **36**: 2017—1964
Axial focusing in SOFAR channel. A. O. Williams, Jr., and William Horne. **36**: 1997—1964
Calculation of the peak amplitudes of SOFAR signals. Peter Hirsch. **36**: 1998—1964
Digital-computer phase techniques for determining noise-source location. Charles Schmid. **36**: 2015—1964
Echo-ranging device used to measure the size of a well at Camp Century. O. Charles Mullineaux. **36**: 1019—1964
Method for analyzing harmonic spectra of wide dynamic range. James H. Prout. **36**: 2015—1964
Optimal detection of an unknown discrete waveform that is recurring randomly in Gaussian noise. M. J. Hinich. **36**: 2015—1964
Power spectrum of array signal-gain fluctuations. Arthur Shapiro. **36**: 1998—1964
Synthesis of directive arrays: realization. C. D. Lowenstein. **36**: 1012—1964

Patents

Acoustical Doppler firing device. Harry H. Hall and Robert P. Gutterman. **36**: 1244—1964
Adjustable bearing channel for echo ranging system. Jarrett Lewis Hathway. **36**: 1785—1964
Air-dropped miniature sonobuoy. George J. Tatnall, Albert F. Scarcelli, and George A. Gimber. **36**: 249—1964
Automatically keyed signal source. Francis W. Watlington. **36**: 249—1964
Dipped sonar data transmission system. Hubert G. Wolff, Jack Rogers, and Home H. Da Moude. **36**: 248—1964
Echo-ranging and the like. Peter Roy Hopkin and William Halliday. **36**: 1245—1964
Echo ranging with reference to boundary conditions. Stanley Capel Sparling, Roy William George Haslett, Peter Roy Hopkin, and John Ernest Leon Sothcott. **36**: 249—1964
Method of and apparatus for acoustic position finding. David Gordon Tucker. **36**: 248—1964
Phase measuring devices. Paul D. Frelich. **36**: 637—1964
Radio sonobuoy system. Jesse J. Coop. **36**: 1244—1964
Sea depth determination air survey means. Earl W. Springer. **36**: 1244—1964
Signal controlled steering systems. Alton C. Dickieson. **36**: 407—1964
Sonar equipment for single-transducer operation. Harring Jess. **36**: 637—1964
Sonar system. William J. Finney. **36**: 1612—1964
Visual frequency indicator for broad band sonar monitor. Robert L. Denton. **36**: 637—1964

13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

Papers

Acoustic radiation from a finite cylinder. W. Williams, N. G. Parke, D. A. Moran, and Charles H. Sherman. **36**: 2316—1964
Behavior of piezoceramic projector materials under hydrostatic pressure. R. Y. Nishi and R. F. Brown. **36**: 1292—1964
Calibration of piston transducers at marginal test distances. Gerald A. Sabin. **36**: 168—1964
Coupler reciprocity system for hydrophone calibration at high pressures. G. W. McMahon. **36**: 2311—1964
Diffraction constants of acoustic transducers. T. A. Henriquez. **36**: 267—1964
Effects of shading on minor-lobe level and beamwidth in symmetrical uniformly spaced 6- and 4-element arrays. Donald J. Karbo. **36**: 838—1964
Electrokinetic, acoustic pressure transducer. J. L. Collins and G. E. Ellis. **36**: 1858—1964
Interaction radiation resistance for a line array of two and three magnetostrictive-stack transducers at an air–water surface. F. B. Stumpf. **36**: 174—1964
Mutual radiation impedance of square and rectangular pistons in a rigid infinite baffle. Elizabeth M. Arase. **36**: 1521—1964
Performance of open ferroelectric ceramic cylinders in underwater transducers. G. W. McMahon. **36**: 528—1964
Propagation of displacement waves in the sea. L. N. Liebermann and R. A. Rasmussen. **36**: 843—1964
Reception characteristics of a linear array in a random transmission medium. Gary E. Lord and Stanley R. Murphy. **36**: 850—1964
Reciprocity calibration of a standard hydrophone at 16 000 psi. Claude C. Sims and T. A. Henriquez. **36**: 1704—1964
Self- and mutual-radiation impedance and beam patterns for flexural disks in a rigid plane. David T. Porter. **36**: 1154—1964
Sensitivity of liquid-filled, end-capped, cylindrical, ceramic hydrophones. G. W. McMahon. **36**: 695—1964
Signal detection by arrays in noise fields with local variations. Theron Usher, Jr. **36**: 1444—1964
Underwater sound reflection from layered media. G. R. Barnard, J. L. Bardin, and W. B. Hempkins. **36**: 2119—1964
Underwater-sound-transducer calibration from near-field data. W. James Trott. **36**: 1557—1964
Variance of the bearing angle of a discrete linear-difference array in a random transmission medium. Gary E. Lord. **36**: 1545—1964

Variation of electroclastic constants of polycrystalline lead titanate zirconate with thoroughness of poling. D. Berlincourt. **36**: 515—1964

Letters to the Editor

Calculation of coupling effects in Pritchard's array. Ewald Eichler. **36**: 1393—1964

Farfield-noise prediction from nearfield-spectrum measurements. Joshua E. Greenspon. **36**: 604—1964

Farfield radiation pattern of a noise source from nearfield measurements. Horace G. Ferris. **36**: 1597—1964

On the discrimination factor for a continuous distribution of noise sources. Elizabeth M Arase. **36**: 785—1964

Solid-core probe hydrophone. James E. Barger and F. V. Hunt. **36**: 1589—1964

Abstracts

Acoustic pressure-release techniques for transducers. W. J. Toulis. **36**: 1027—1964

Broad-band hydrophone. J. A. Merrill. **36**: 1027—1964

Directivity of a cylindrical source. James H. Ricard. **36**: 1026—1964

Experimental determination of mutual radiation impedance between coplanar circular pistons. F. R. Flad, J. A. Kuzneski, and W. B. Packard. **36**: 2005—1964

Experimental liquid-filled transducer array for deep-ocean operation. Paul M. Kendig and Hugh J. Clarke. **36**: 2005—1964

Free circular disk with constant pressure distribution. Elizabeth M. Arase. **36**: 2005—1964

Increased bandwidth for deep-submergence transducers. Joseph E. Martin. **36**: 1026—1964

Intensity meter for underwater use. Fred Schloss and Alan O. Sykes. **36**: 2017—1964

Iteration techniques in computer study of flooded cylindrical radiators. R. S. Haas and F. H. Middleton. **36**: 1026—1964

Methods for analyzing the radiation loading of finite cylindrical transducers. M. C. Junger and J. E. Greenspon. **36**: 1026—1964

Model experiments on flooded and air-backed cylindrical radiators. N. T. Chieu and F. H. Middleton. **36**: 2005—1964

Note on underwater horns. D. Muster and A. Christensen. **36**: 2010—1964

Novel formulation of the Helmholtz integral for calculating the acoustic field of slender axisymmetric radiators. Lawrence G. Copley. **36**: 2006—1964

Pertinent acoustic characteristics of cylindrical wooden tanks. R. A. DeChico and R. C. Lewis. **36**: 2017—1964

Power-output capability of a piezoelectrically driven Tonpilz transducer. A. H. Lubell. **36**: 1026—1964

Properties of cylindrical arrays of circular rings II. Leon W. Camp. **36**: 1026—1964

Random-bearing errors in split-beam systems. Theron Usher, Jr. **36**: 2006—1964

Technique for curing polyurethane coatings on piezoelectric transducers. R. W. Fabian, L. E. Long, and D. J. Repici. **36**: 1027—1964

Transdec is operational. Charles E. Green. **36**: 2017—1964

Unidirectional resonance characteristics of split cylinders. John A. Devine and Herbert L. West. **36**: 2005—1964

Vertical coherence of explosive reverberation. G. R. Lund and R. J. Urick. **36**: 1015—1964

Patents

Acoustical wave direction determining device. Norman B. Miller, Miles T. Pigott, David C. Whitmarsh, and Richard O. Rowlands. **36**: 1006—1964

Anechoic sonar calibration pool. Charles E. Green. **36**: 2285—1964

Elastic wave vibrator. Harry W. Kompanek. **36**: 408—1964

Electroacoustical transducer mounted on boat hull. Gerard W. Renner. **36**: 1006—1964

Electrodynamic underwater sound source. Peter E. Weber and Michael A. Hall. **36**: 1426—1964

Electrolytic-ignition underwater sound source. Edward P. Anderson. **36**: 407—1964

Ferrite transducers. Harry B. Miller. **36**: 637—1964

Hydraulic underwater sound transducer. Chester A. Clark. **36**: 408—1964

Hydroacoustic oscillator-amplifier. John V. Bouyoucos. **36**: 809—1964

Hydrophone testing tank. Miles P. Eskin, Henry Gerber, and Marvin S. Weinstein. **36**: 1426—1964

Signal delay systems. Edwin E. Turner. **36**: 637—1964

Sonic pulse generating device. Ross Jay Miller and George Adelbert Noddin. **36**: 638—1964

Sonic pulse generator. George Adelbert Noddin. **36**: 809—1964

Supersensitive shielded crystal hydrophone. Benjamin L. Snavely. **36**: 1006—1964

Support for electro-acoustic transducer. Clyde P. Glover. **36**: 2442—1964

Transducer. Frank R. Abbott. **36**: 1786—1964

Underwater acoustic pressure measuring device. Henry Gerber. **36**: 249—1964

Underwater loudspeaker. Frank R. Abbott. **36**: 408—1964

Underwater sound generator. Mac Bielecki and Bernard M. Wilner. **36**: 2441—1964

Underwater sound transducer with sealed liquid coupling chamber. Claude C. Sims. **36**: 1245—1964

Underwater transducer. Brownlee B. Gauld. **36**: 249—1964

News

Rapid calibrator for small hydrophones. **36**: 402—1964

13.12 Acoustic Cavitation

Papers

Influence of radiation on the cavitation threshold of degassed water. R. D. Finch. **36**: 2287—1964

Abstracts

Cavitation thresholds of superfluid helium. R. D. Finch, R. Kagiwada, M. Barmatz, and I. Rudnick. **36**: 1009—1964

Experimental studies of controlled cavitation. S. D. Howkins. **36**: 1009—1964

Model for the persistent microbubble. W. R. Turner. **36**: 1009—1964

Thresholds of acoustic cavitation in water. James E. Barger. **36**: 1008—1964

14 AEROACOUSTICS, MACROSONICS

14.2 Macrosonic Propagation. Distortion of the Wavefront. Shock Waves. Blast Waves. Supersonic Boom

Papers

Attenuation of guided, repeated shock waves in gases. H. Medwin. **36**: 870—1964

Compression wave surrounding an expanding sphere. K. Naugolnykh. **36**: 1442—1964

Initial response of a fluid-filled, elastic, circular, cylindrical shell to a shock wave in acoustic medium. L. A. Peralta and S. Raynor. **36**: 476—1964

Thermoviscous attenuation of plane, periodic, finite-amplitude sound waves. David T. Blackstock. **36**: 534—1964

Ultrasonic absorption in water at finite amplitudes. R. P. Barnes, Jr., and Robert T. Beyer. **36**: 1371—1964

Letters to the Editor

On plane, spherical, and cylindrical sound waves of finite amplitude in lossless fluids. David T. Blackstock. **36**: 217—1964

Abstracts

Application of the crosscorrelation technique to wall-pressure fluctuations below free shear layers and oscillating shocks. Fritz R. Krause. **36**: 1046—1964

Development of a Mach wave radiated by a point quadrupole. J. E. Ffowcs Williams. **36**: 1045—1964

Experimental study of acoustical *N* waves. Wayne M. Wright. **36**: 1032—1964

Harmonic distortion of initially sinusoidal plane wave. A. O. Williams, Jr., and F. Ingenito. **36**: 1032—1964

Mach wave radiation from a highly sheared supersonic turbulent flow. J. E. Ffowcs Williams and Gideon Maidanik. **36**: 1045—1964

On finite amplitude attenuation of sound waves in air. Clayton H. Allen. **36**: 1032—1964

Parameter of nonlinearity for liquids. A. B. Coppens, M. B. Seiden, and R. T. Beyer. **36**: 1032—1964

Solutions for nonlinear plane-wave equations of acoustics by the method of functional interrelationships of dependent variables. Verner J. Raelson. **36**: 1031—1964

Sonic boom assessment. E. J. Richards. **36**: 1036—1964

Sound propagation from high-altitude explosions. Marvin Diamond and R. P. Lee. **36**: 1991—1964

Theoretical analysis of propagation of sound waves containing shocks. David T. Blackstock. **36**: 1032—1964

Thermal stress-wave propagation in hollow elastic spheres. T. Tsui and H. Kraus. **36**: 1999—1964

Waves of finite amplitude. K. Naugolnykh. **36**: 1031—1964

Patents

Device for measuring supersonic and subsonic speeds. Phillip Frank Eiland, Jr., and James H. McGinley. **36**: 1986—1964

News

Shocktube kinetic studies using a reference standard. **36**: 1224—1964

14.3 Gross Movement of Matter by Sound Waves. Acoustic Streaming

Abstracts

Acoustic streaming near an undulating surface. Wesley L. Nyborg. **36**: 1033—1964

14.6 Interaction of Fluid Motion and Sound

Papers

Interaction between sound and flow in acoustic cavities: mass, momentum, and energy considerations. R. H. Cantrell and R. W. Hart. **36**: 697—1964

Abstracts

Scattering of sound by atmospheric turbulence: application to remote wind-velocity measurement. P. A. Bricout and G. Kelton. **36**: 1035—1964

14.7 Generation of Sound by Fluid Flow

Papers

Effect of boundary flexibility on the response of a string to convected random loading. Pritchard H. White. **36**: 707—1964

Flow excitation of cylindrical shells and associated coincidence effects. J. V. Rattayya and M. C. Junger. **36**: 878—1964

Fluctuating wall pressure under a separated supersonic flow. A. L. Kistler. **36**: 543—1964

On flow fields driving a contiguous acoustic field. Alan Powell. **36**: 830—1964

Theory of vortex sound. Alan Powell. **36**: 177—1964

Abstracts

Acoustical measurements of static tests of clustered and single-nozzled rocket engines. Richard N. Tedrick. **36**: 1036—1964

Development of a Mach wave radiated by a point quadrupole. J. E. Ffowcs Williams. **36**: 1045—1964

Effect of surface curvature on boundary-layer noise. William C. Meecham. **36**: 1047—1964

Engineering approach to prediction of space-vehicle acoustic environments. William J. Gruner and Garland Johnston. **36**: 1036—1964

Mach wave radiation from a highly sheared supersonic turbulent flow. J. E. Ffowcs Williams and Gideon Maidanik. **36**: 1045—1964

Measurements of pressures on a rigid pipe wall due to turbulent air flow. Fred C. DeMetz, Donald W. Jorgensen, and Charles Devin, Jr. **36**: 1044—1964

Noise reduction of jets by multiple nozzles and turbo fans. Kenneth M. Eldred. **36**: 1035—1964

On the mechanism of the Hartmann whistle. T. J. B. Smith and Alan Powell. **36**: 1018—1964

Panel excitation by high-speed boundary-layer turbulence. Richard H. Lyon. **36**: 1045—1964

Panel response and its relation to the type of excitation. E. J. Richards and J. F. Wilby. **36**: 1046—1964

Point-jet compressed-gas transducer. Stanley R. Rich. **36**: 1018—1964

Preliminary studies of the sound radiated by orifices in pipelines. D. N. Contractor. **36**: 2012—1964

Some theoretical aspects of noise generation in shipboard water systems. A. C. Peter and R. Kamo. **36**: 1044—1964

Sound generation by inhomogeneities convected by a steady space-varying flow, or "scattering" by subsonic waves. Alan Powell. **36**: 1032—1964
Sound radiation from turbulent flow near flexible surfaces. John E. Ffowcs-Williams. **36**: 2012—1964
Studies of the vortex-whistle periodic flow. R. C. Chanaud. **36**: 1018—1964
Turbulent boundary-layer pressure fluctuations over two-dimensional and narrow delta wings. E. J. Richards. **36**: 1045—1964

14.8 Aerothermoacoustics

Papers
Acoustic properties of fluid-filled chambers at infrasonic frequencies in the absence of convection. Henry Gerber. **36**: 1427—1964
Calculation of dynamic-pressure changes in the presence of free convection. Henry Gerber. **36**: 1435—1964
Influence of sound upon local heat transfer from a cylinder. P. D. Richardson. **36**: 2323—1964

Letters to the Editor
Experiments on the Rijke-tube phenomenon. Melvin M. Friedlander, T. J. B. Smith, and Alan Powell. **36**: 1737—1964

Abstracts
Experiments on the Rijke-tube phenomenon. Melvin M. Friedlander, T. J. B. Smith, and Alan Powell. **36**: 1009—1964
Thermal stress-wave propagation in hollow elastic spheres. T. Tsui and H. Kraus. **36**: 1999—1964

15 ACOUSTIC SIGNAL PROCESSING

15.1 General, Unclassified

Papers
Covariance of noise in attenuating media. W. S. Liggett, Jr., and M. J. Jacobson. **36**: 1183—1964

Abstracts
Determination of bandpass-filter corrections. J. R. Engstrom. **36**: 2015—1964
Function filtering. E. L. Cordell and R. J. Beason. **36**: 2016—1964
Method for analyzing harmonic spectra of wide dynamic range. James H. Prout. **36**: 2015—1964
Principles of ultrasonic imaging. Donald S. Moseley. **36**: 2017—1964
Synthesis of directive arrays: realization. C. D. Lowenstein. **36**: 1012—1964

Book Reviews
Signal Detection and Recognition by Human Observers. John A. Swets, editor and arranger. (Reviewed by R. S. Gales.) **36**: 2428—1964

News
British symposium on signal processing in radar and sonar directional systems. **36**: 799—1964
NATO Advanced Study Institute on Signal Processing. **36**: 1231—1964
NATO Advanced Study Institute on Signal Processing. C. C. Leroy. **36**: 2424—1964

15.2 Statistical Theory of Signals

Papers
On the autocorrelation of random inhomogeneities. Craig Comstock. **36**: 1534—1964
Variance of the bearing angle of a discrete linear-difference array in a random transmission medium. Gary E. Lord. **36**: 1545—1964

Abstracts
Digital-computer phase techniques for determining noise-source location. Charles Schmid. **36**: 2015—1964
Necessity of adaptive receiver realizations. L. W. Nolte. **36**: 2016—1964
Optimal detection of an unknown discrete waveform that is recurring randomly in Gaussian noise. M. J. Hinich. **36**: 2015—1964
Optimum detection of random phase modulation with phase-lock loops. R. G. Clapham and P. H. Moose. **36**: 2016—1964
Performance of optimum detection receivers in amplitude-fading channels. Joseph N. Gittelman. **36**: 2015—1964
Use of amplitude information in sequential signal detection. Richard A. Roberts. **36**: 2015—1964

15.3 Space–Time Processing Methods. Automatic Recognition

Papers
Correlation detection in a duovelocity medium, with application to seismic disturbances. Paul W. Cooper. **36**: 1378—1964
Digital compressed-time correlators and matched filters for active sonar. W. B. Allen and E. C. Westerfield. **36**: 121—1964
Directivity study of the noise field in the ocean, employing a correlative dipole. Harry M. Linnette and Rory J. Thompson. **36**: 1788—1964
Signal detection by arrays in noise fields with local variations. Theron Usher, Jr. **36**: 1444—1964

Letters to the Editor
On the discrimination factor for a continuous distribution of noise sources. Elizabeth M. Arase. **36**: 785—1964
Space-time correlations of random noise above a reflecting plane. R. F. Lambert. **36**: 788—1964

Abstracts
Method for analyzing harmonic spectra of wide dynamic range. James H. Prout. **36**: 2015—1964
Techniques for automatic recording of impedance and admittance of transducers under high power. Abraham I. Dranetz. **36**: 1013—1964

Patents
Identification of sound and like signals. Emil Frank Hembrooke. **36**: 2442—1964

15.4 Displays and Sensory Pattern Recognition. Learning Machines

Abstracts
Real-time electronic spectrograph for analysis of acoustic transients. J. F. Germano, R. Halley, and W. B. Allen. **36**: 2015—1964

15.5 Instrumentation

Papers

Digital compressed-time correlators and matched filters for active sonar. W. B. Allen and E. C. Westerfield. **36**: 121—1964

Spectral broadening of acoustic reverberation in Doppler-shift fluid flowmeters. P. S. Green. **36**: 1383—1964

16 BIOACOUSTICS

16.1 General, Unclassified

Papers

Reverberation from a deep scattering layer measured with explosive sound sources. J. R. Marshall and R. P. Chapman. **36**: 164—1964

Book Reviews

Marine Bio-Acoustics. William N. Tavolga, editor. (Reviewed by William J. Fry.) **36**: 2251—1964

16.2 Acoustic Characteristics of Biological Materials. Tissues. Microstructures from Macromolecular Species to Cellular Level

Papers

Quantitative neuroanatomic studies implemented by ultrasonic lesions—mammillary nuclei and associated complex of cat brain. William J. Fry, Francis J. Fry, Rita Malek, and Joseph W. Pankau. **36**: 1795—1964

16.4 Mechanism of Action of Acoustic Energy on Biological Systems. Physical Processes. Sites of Action

Abstracts

Simulation of aerospace flight-acceleration environment for biodynamics research. Neville P. Clarke, Walter M. Wolff, and H. E. von Gierke. **36**: 1021—1964

16.5 Use of Acoustic Energy (with or without Other Forms of Energy) in Studies of Structure and Function of Biological Systems

Papers

Quantitative neuroanatomic studies implemented by ultrasonic lesions—mammillary nuclei and associated complex of cat brin. William J. Fry, Francis J. Fry, Rita Malek, and Joseph W. Pankau. **36**: 1795—1964

16.6 Sound Generation and Detection by Animals

Papers

Lateral line as a vibration receptor. E. E. Suckling and J. A. Suckling. **36**: 2214—1964

Sonic-pulse compression in bats and people: a comment. Willem A. van Bergeijk. **36**: 594—1964

Abstracts

Airborne sonic emissions of *Tursiops truncatus* (*M*). John C. Lilly. **36**: 1007—1964

Auditory masking in the rat. George Gourevitch. **36**: 1007—1964

Auditory responses in certain lizards. Ernest A. Peterson. **36**: 1008—1964

Classification of marine life sounds, using SCEPTRON. Leo S. Balandis. **36**: 1994—1964

Effect of sensorineural damage upon the cat's intensity-difference threshold. Donald N. Elliott. **36**: 1007—1964

Evoked vocal response of the bullfrog. Robert R. Capranica. **36**: 2007—1964

Evolution of binaural hearing. Willem A. van Bergeijk. **36**: 1008—1964

Evolution of vertebrate hearing. Willem A. van Bergeijk. **36**: 1008—1964

Temporal integration in the human and the Rhesus monkey. T. D. Clack, F. Dey, and J. D. Harris. **36**: 1007—1964

Thresholds of audition for three species of monkeys. Shiro Fujita and Donald N. Elliott. **36**: 1007—1964

Book Reviews

Marine Bio-Acoustics. William N. Tavolga, editor. (Reviewed by William J. Fry.) **36**: 2251—1964

News

Research with the bottlenose dolphin (*Tursiops truncatus*). John C. Lilly. **36**: 1033(T)—1964

16.7 Role of Acoustic Energy in the Integrated Behavior of Animals

Letters to the Editor

Acoustics and people. Harold Burris-Meyer. **36**: 1967—1964

Abstracts

Acoustics and people. Harold Burris-Meyer. **36**: 1043—1964

Book Reviews

Acoustic Behaviour of Animals. R.-G. Busnel, editor. (Reviewed by William J. Fry.) **36**: 1407—1964

16.8 Medical Diagnosis with Acoustics

Abstracts

Artifacts in ultrasonography. Benson Carlin and Ray A. Brinker. **36**: 2017—1964

Heartprints and other body sounds. L. G. Kersta and M. L. Schwartz. **36**: 1050—1964

Heartprints of some arrhythmias and systolic murmurs. M. L. Schwartz, L. G. Kersta, and L. D. Spindel. **36**: 2008—1964

News

Annual Meeting of the American Institute of Ultrasonics in Medicine. William J. Fry. **36**: 2419—1964

Symposium on ultrasonic diagnosis in ophthalmology. **36**: 980—1964

16.9 Medical Use of Ultrasonics for Tissue Modification (Permanent and Temporary)

News

American Institute of Ultrasonics in Medicine. **36**: 793—1964